

ARTICULATION GUIDE FOR BRASS INSTRUMENTS
BASED ON COMMON PRACTICES
OF CONTEMPORARY COMPOSERS AND PERFORMERS

By

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Abstract of Dissertation Presented to the Graduate School
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May, 1986

Chairman: Dr. Albert B. Smith, III
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Major Department: Educational Leadership

The primary purpose of the study was to develop and propose an articulation guide to be used by contemporary composers and performers of brass music. In order to facilitate the development of such a guide, the following research question was formulated: What brass articulations have been used since the development of the first articulation notation? The following three hypotheses were formulated:

1. Contemporary composers will demonstrate different conceptions of how various brass articulations should be notated.
2. Brass performers will indicate no clear preferences on how individual brass articulations should be notated.
3. Major conductors will demonstrate a common practice of performing brass articulation notations.

To study the research question, articulation practices from seven musical areas were investigated. To test hypothesis one, a composer survey was formulated which asked 72 composers to notate 15 separate articulation descriptions. Those composers who did not respond to the initial survey

were sent a form which presented possible notational alternatives for the 15 articulation descriptions. Forty-two composers completed at least one form. To test hypothesis two, a performer survey was formulated from the results of the composer survey and was administered to 280 of those attending the 1985 New York Conference for Brass Scholarships. To test hypothesis three, recorded musical excerpts from 11 different musical periods were studied. Passages were examined to reveal similarities and differences of performance practice.

Findings were as follows. Clear indications on how to tongue notations were found in the Baroque Period, the Classical Period, and jazz. Authorities demonstrated no consensus for articulations of any other musical period. Hypothesis one was not rejected. Hypothesis two was rejected. Hypothesis three was rejected.

Based on the above findings, a proposed brass articulation guide was constructed, including 17 articulation notations and proposed definitions for each. The study concluded that performers are more knowledgeable about performing articulations in 17th- and 18th-century music than in music of today. If composers and performers would agree on this study's 17 proposed articulation notations, there would be fewer misunderstandings on how music is to be performed.

CHAPTER ONE INTRODUCTION

The modern system of notation became common practice during the 13th and 14th centuries (Apel, 1982; Mozart, 1951). The first use of marks to modify the length or volume of a particular note came around the year 1600, making it possible for musical expression to be conveyed through writing. The first articulation marks were indications to violinists on how to use the bow while playing certain passages. These signs to violinists form the foundation of articulation notation for most other instrumentalists. Since that time, composers and performers of brass music have used these signs to aid musical expression in the performance of music. The problem facing the musical field was that confusion existed in how composers and performers of brass music interpreted these articulation notation signs.

Statement of Purpose

Gardner Read, whose Music Notation: A Manual for Modern Practice (1964) has become an important reference for modern composers, has written that the purpose of articulation signs is to give "individual notes their ultimate meaning" (p. 56). There is evidence, however, of disparity in the interpretation of brass articulation notation. Performers and conductors need to have a clear understanding of composers' intentions

while composers need to know what notations will produce desired articulations.

Many contemporary composers have expressed their discomfort with the ambiguity of standard musical notation. William Presser(personal communication, July 5, 1984) commented on the difference between music written for wind and string players around the year 1900 and music being written now; Alfred Reed(personal communication, July 3, 1984) complained that the whole system of notating music is inadequate to express what some composers have come to regard as proper material; James Ployhar(personal communication, July 18, 1984) stated that it is impossible to adequately identify all the various brass articulations, as many are taken from bowings, leaving much confusion in the transition; Clare Grundman(personal communication, August 11, 1984) declared that he uses written descriptions, as articulation notations are oftentimes ambiguous and nebulous.

Nowhere is there one guide which advises composers on how best to obtain desired articulation effects, while, at the same time, advising performers on the current method for interpreting composer articulation notation techniques. The purpose of this study was to develop and propose such an articulation guide to be used by contemporary composers and performers of brass music.

Research Question and Hypotheses

In order to facilitate the development of an articulation guide to be used by contemporary composers and performers of brass music, the following research question and three hypotheses were formulated. The research question was what brass articulations have been used since the development of the first articulation notation? The three hypotheses were

1. Contemporary composers will demonstrate different conceptions of how various brass articulations should be notated.

2. Brass performers will indicate no clear preferences on how individual brass articulations should be notated.

3. Major conductors will demonstrate a common practice of performing brass articulation notations.

By studying current performances, composer and performer preferences, and historical imperatives, a guide was formulated which should help clarify both writing and performing written brass articulation notations.

Significance of the Study

Concern that performers follow composer's articulation notations has existed for over two centuries. Johann Joachim Quantz (Reilly translation, 1966) noted in his 18th-century treatise On Playing the Flute that tonguing on wind instruments must always be used in conformity with the aims

of the composer in accordance with his or her indications of slurs and strokes, as "this puts life into notes. . . .

[Articulation] distinguishes these instruments from the bagpipe, which is played without tonguing"(Quantz, 1966, p. 122).

Christian Friedrich Daniel Schubart(1739-1791) discussed both phrasing and articulation when he wrote, "every musical comma, yes every individual note must have sharp contours, and the staccato must be well practiced(nothing is clearer than a staccato movement), never mutter"(Damm, 1978, p. 21).

Martino(1966), in his article "Notation in General--Articulation in Particular," gave excellent reasons for the clear use of articulation notations.

At a time when performance cannot always be supervised by the composer; when sufficient rehearsal is economically unfeasible; when a real rapport between performer and composer is with rare exception a historical memory; when so many present and past performance traditions exist--within each of which there seems to be so much confusion and ignorance; and when there exists so many compositional attitudes, past and present, within the latter of which the symbiologies associated with those many performance traditions are indiscriminately mixed and applied--at such a time our responsibility to notation is greater than it has ever been.(p. 47)

Read(1964) has indicated that in order to give individual notes their ultimate meaning, expressive indications must be applied. In accordance with the above, Cole(1974) felt that although variations in communication may be charming (as in the haphazard spelling in Elizabethan texts), in order for meaning to be clear there must be standardization, as music is one-way communication.

In letters to the author, many composers have called for clear articulation notation. James Barnes, a composer of band music and Composer-in-residence at the University of Kansas, has written

Today, more than ever before, composers attempt to write specifically what they want to hear, and they are trying to save rehearsal time by trying to be absolutely explicit about how they want their music played. One of the "cardinal rules" in my orchestration courses and in my composition classes is that "you either write it in or rehearse it in." (Barnes, undated, p. 1)

Elliot Carter (personal communication, September 14, 1984) commented, "there can be no one to one correspondence between notational indications and a good performance, although the former can help the latter if they stimulate understanding." Virgil Thomson wrote

It seems to me that brass players should come to an agreement among themselves about notation before throwing their problems at the composers. The latter do mark their scores from time to time with particular effects and forms of attack which they know to be available but for which there is no standard markings. On most of these occasions, some word or words usually identify the effect, which we hope the player is familiar with and prepared to execute acceptably. (personal communication, July 11, 1984)

A fine performance of brass music often depends on the precision displayed by the performers. A beautiful moment is sometimes ruined by one member of a performing group holding a note an instant too long, or by a player's overpowering entrance. As there are divergent interpretations of brass articulation notation, much time is spent in rehearsals trying to understand composer intentions and in trying to come to a consensus. Failure to do so results in a less

than adequate performance. If the notational confusion could be eliminated, many rehearsal hours would be saved and performances would improve. Composer Jan Bach (personal communication, July 5, 1984) said that, "there is a great need to clear this matter up."










Definition of Terms

The terms and their operational definitions for this study were as follows:

Brass instrument. In the modern symphony orchestra, there are four standard brass instruments--the trumpet, French horn, trombone, and tuba. In addition the following are commonly used in concert and jazz bands: the cornet, flügelhorn, euphonium, baritone horn, and sousaphone. During the 15th and 16th centuries, a precursor of modern brass instruments was the cornett, a wooden instrument with a cup-like mouthpiece. For the purpose of this research, brass instruments are considered as any of the aforementioned instruments, as well as the unvalved varieties of trumpet and horn common in the 18th century.

Articulation. Reed (personal communication, July 3, 1984) wrote of "three mutually independent factors involved in the production and in the sustaining of each tone. These are (1) the attack (the way the tone is begun), (2) how long the tone is sustained after it has been attacked, and (3) the dynamic level of both the attack and the sostenuto." The Reed definition is used here.

Articulation notation. In traditional music notation, articulation notations are signs which attempt to clearly demonstrate how a note is to be started, sustained, and/or ended. In this study, the traditional signs are called by the following names:

	staccato mark
	normal accent
	unaccented note
	wedge
	slanted wedge (strong beat)
	circumflex accent
	legato or tenuto mark
	slur
	tie

Articulation guide. An articulation guide is a source where performers can look to determine how articulation notations should be played and where composers can look to determine how articulations should be notated.

Brass performers. Brass performers are those who play any brass instruments (see definition of brass instrument). For the purpose of this study, conductors of brass instrumentalists are also considered as brass performers.

Contemporary composers. This is defined as composers who, to the best of the author's knowledge, were living as of June, 1984.

Major conductors. For this study, those conductors who have been selected by major record companies(Columbia, RCA, London, etc.) to direct classical music performances are considered major conductors.

Delimitations

1. Though an historical study of articulation notation throughout the ages of all major composers would have proven enlightening, for the purposes of this study it would have been an impossible task and was not undertaken. Instead, the study was limited to a sample of musical theorists and composers representing the past four centuries.

2. In attempting to determine common performance practices of brass articulation, recordings of great works were used. It was impossible to include recordings of all composers in this study, and, therefore, only one composer was chosen to represent each musical period.

3. The musical periods to be studied with recordings were limited to the late Baroque(J.S. Bach), the Classical(Haydn), the late Classical(Beethoven), the Romantic(Berlioz), the early Post-romantic(Wagner), the Russian Romantic(Rimsky-Korsakov), the American Romantic(Sousa), Impressionism(Debussy), and the Neo-classic Period and Expressionist Period(Stavinsky and Berg).

4. The recordings used were limited to those available in the music libraries of the University of Maine at Orono, the University of Florida, the Queens Borough Public Library in New York City, and recordings either in the author's private collection or made available to the author.

5. Works studied in this analysis of recordings were limited to only one composition by each considered composer.

6. The works considered for analysis were further limited to only one section of each piece; a section the author felt to be representative of the brass writing in that piece.

7. It would have been helpful to study the articulation usage of all contemporary composers. Again, for the resources of this study, it would have been an impossible task and was not attempted. Contemporary composers selected for inclusion in this study were limited to a list of American composers suggested by members of the graduate music faculty of the University of Florida.

8. The list of contemporary composers to be studied was further limited by those composers who chose not to complete a survey on brass articulation notation.

9. This study included a survey of brass performers. Though a nationwide survey of brass musicians would have been ideal, it would have proven to be financially impractical. This survey was limited to 208 musicians who attended the 1985 New York Conference of Brass Scholarships. Although this conference was attended by brass players from throughout the United States, it is likely that most who attended were

from the northeastern region of the country. Results from this survey may only apply to that region.

Limitations

This study had the following limitations:

1. As the study's historical analysis was limited to a sample of musical theorists and composers, the findings may not be consistent with all composers of all musical periods.

2. In trying to determine a common practice of all brass articulation notation, musical periods were represented by only one composer for each period. Music of other composers in each period may be performed differently.

3. In trying to determine a common practice of brass articulation notation, only 11 musical periods were studied. The study's findings may not apply to music not falling within these periods.

4. In trying to determine a common practice of brass articulation, only one work of each composer was used. The findings may not apply to other works of the composer.

5. As only a limited number of recordings were used to analyze composer works, findings may not apply to all performances of each work.

6. In this study's initial survey, composers were asked to supply articulation notations to describe a given musical example which was formulated to present many rhythmic variations within a two-measure span. Some composers found the example to be "unmusical" and expressed difficulty in providing articulation notations for a musical example

they would not write themselves. This might limit the application of these notations to other examples.

7. The ideal method of determining how brass performers play written articulations is to actually listen to their performances and analyze them. Unfortunately, the above process was too involved for this particular study. Instead, a written survey was used, asking performers to identify preferred notations for particular articulations. It is hoped that there is a high correlation between what performers think they do and what they actually do.

8. Although this study briefly touched upon modern avant-garde techniques of notation, it was mostly limited to standard musical notation.

Assumptions

This study made the following assumptions:

1. The reader will be familiar with standard musical notation.

2. Composers who use brass articulation notations desire their music to be performed in a particular manner.

3. When confronted with different articulation notations while performing, brass musicians will make an effort to differentiate among them.

Design of the Study

This study was presented in six major sections. The first was an historical study of brass articulation notation encompassing a review of literature. This included important source material as well as pertinent commentary and attempted to answer the major research question.

The second section was a study of the brass articulation usage of major contemporary composers of brass literature. This included the results of a survey of composers on articulation notation and written comments of current composers. This section examined the first hypothesis.

The third section of the study reported on a survey of articulation preferences of brass performers and conductors. It presented the findings of this survey and presented an analysis of findings by instrument, age, and by professional or amateur standing. This examined the second hypothesis.

The fourth section of the study analyzed recorded excerpts of music by important conductors. The work studied represented a variety of musical eras and periods. They included

J.S. Bach	<u>Brandenburg Concerto in F</u> (3rd Movement)
F.J. Haydn	<u>Trumpet Concerto</u> (1st Movement)
L. Beethoven	<u>Symphony No. 5 in C Minor</u> (5th Movement)
H. Berlioz	<u>Fantastic Symphony</u> (5th Movement)
R. Wagner	<u>Overture to Die Meistersinger</u>
Rimsky-Korsakov	<u>Capriccio Español</u> (5th Movement)

G. Mahler	<u>Symphony No. 1 in D(4th Movement)</u>
J.P. Sousa	<u>The Stars and Stripes Stripes Forever</u>
C. Debussy	<u>Nocturnes("Fêtes")</u>
I. Stravinsky	<u>Rite of Spring("Danse Sacre")</u>
A. Berg	<u>Wozzeck("Soldiers' March")</u>

The object of this analysis was to determine if there were any trends which emerged from the work of important conductors which would help in the performance of articulation notations in music of different eras and compositional styles. This section examined the third hypothesis.

The fifth section of the study was an overview of brass articulation and provided a guide for brass articulation based on the findings of this study. The final section summarized the research, discussed the findings, presented conclusions, and listed suggestions for further study.

CHAPTER TWO REVIEW OF LITERATURE

Common practice performance techniques often varied from one era to the next. In reviewing literature on brass articulation notation, this study reviewed seven musical categories, using primary sources where possible as well as pertinent secondary sources. Sources of the Baroque Period (17th century), the Classical Period (18th and early 19th centuries), the Romantic Period (late 19th and early 20th centuries), traditional music of the 20th century, modern or avant-garde music, and jazz notations were reviewed.

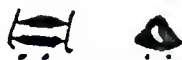
The Baroque Period

According to DeJong (1971), one of the earliest descriptions of instrumental tonguing came in 1535 by Ganassi in Fontegara. It listed three types of tonguing used by players of the recorder. The first, teche teche teche, was rough and harsh. The third, lere lere lere, was smooth and pleasant. The second, tere tere tere, was midway between the first and third. These tonguings could have been altered by changing the initial consonant to a "d" and by changing the vowels; for example, tache, teche, tichi, tocho, tuchi.

The first known trumpet instruction book was Tutta l'arte della Trombetta (The Entire Art of Trumpet Playing). It was

written in 1614 by Bendinelli. Bendinelli, originally from Verona, moved to Munich, where he led the trumpet ensemble at the ducal court from 1580 to 1617. His method listed four varieties of trumpet articulations: reversed (rouersia), direct(dritta), double(theghehegheda), and pointed (pointile). Bendinelli(1975) mentioned that the tongue one uses does not matter as long as the player "finds it easy and becomes used to it because he will then be able to investigate his instrument and pass over to matters of greater importance"(p. 4). He gave specific articulation instructions for a number of notations. In notes with dots under them(see Example No. 1a), the player "should lead his chin to accentuate"(p.4). In a pair of notes connected by a straight diagonal line(see Example No.1b), the player "should always pronounce [the syllable] 'dran', hardly touching the front note and passing to the other in a kind of accent"(p. 4). Bendinelli mentioned that the "dran is useful in toccatas and in the stendaro(a specific military signal). Individual military signals were tongued differently.

a)



b)



Example No. 1. Bendinelli Notations

Girolamo Fantini(1975) completed a second Baroque trumpet method, Modo per Impare a Sonare di Tromba(The Trumpet in

a Warlike Way) in 1638. This work contains a collection of nearly 100 pieces with commentary. Among other problems, Fantini addressed how to play lengthy notes. Breaths in a sonata were to be taken during the dotted portion of an appropriate note. A note of great length was to begin softly, "becoming louder for half the value of the note, and with the other half dying away until at the end of the beat it can scarcely be heard"(as quoted in DeJong, 1971, p. 31). Slurs were to be played with the syllables "tia tia da" and "dia dia da". In slurs of two notes when the value of each note was an eighth-note or less, the first was to have been played with less time given to it than to the second. When the value of each note was greater than an eighth, each should have received equal value. Fantini, as did Bendinelli, gave an example of double tonguing(tegheda tan ta).

D.B. Smith(1982) described the three double-tongue articulations of Fantini. The rouersia tonguing was a double-tongue stroke which alternated a forward placement against the palate with one farther in the back of the mouth. The syllables "le ra le ra li ru" were used for this tonguing. Dritta tonguing had the tongue placed between the teeth perpendicularly. The syllables used were "ti ri ti ri ti ri di". Smith reported that theghehegheda tonguing used a tongue placement on the palate near the teeth followed by an articulation farther back in the mouth as in modern double tonguing. He further reported that Girolamo Della Cas and Francesco Rognoni, two other authors of Baroque treatises, found this

tonguing to be harsh and disgusting. Smith felt, however, that this tonguing was appropriate for the trombone which needed a stronger attack than the cornett to achieve the same results.

As for articulation notations in the Baroque Period, Apel(Harvard Dictionary of Music, 1982) reported that the earliest use of phrasing marks(other than written rests) occurred in Cavalieri's La Rapresentazione di Anima di Corpo (1600), when the sign **.2'** was placed at the end of a phrase. The comma, used as a sign of articulation rather than as a phrasing mark, was one of the earliest uses of articulation notation(see Example No. 2). Apel(1982) reported



Example No. 2. Comma As Articulation Notation

that signs of articulation, such as the various signs for legato and staccato, were not uncommon in compositions ca. 1620 to 1750.

In slow pieces of a processional nature, Baroque performers often held a dotted note longer than its written value, while cutting the value of a shorter note. This "double-dotting" has been chronicled by Collins(1969) and Enrico(1979) in an article on Guiseppi Torelli's trumpet music.

The Classical Period

In 1756 Leopold Mozart(1719-1787) published what is generally thought to be the most important reference work on Classical violin playing, A Treatise on the Fundamental Principles of Violin Playing(1951). The work dealt with virtually all aspects of violin playing and was important to this study in that many musicians believe that modern brass articulation developed from string bowings.



Example No. 3. Leopold Mozart Articulation Notations

Mozart listed many musical examples and gave precise instructions on how each should have been bowed. For slurred (or tied) wedges (or strokes), Mozart instructed that the violinist must take the same value of time for each bow-stroke and that the division of notes must be made clear by an accent on each note (see Example No. 3a). For sets of two tied and dotted notes (see Example No. 3b), Mozart indicated that the second of each set must be distinguished by after-pressure of the bow. Mozart used strokes to show where notes should be strongly accented and separated (see Example No. 3c). When the player was presented with a series of sixteenth notes (see Example No. 3d), the beat "must be marked with a vigour which inspires confidence" (p. 114). Two-note slurs, without other articulation notations, should have been slurred on one bow (see Example No. 3e). Mozart suggested that in a long series of notes to be taken in one bow (see Example No. 3f) the first sixteenth note of each group should have an emphasis. In all, Mozart listed 16 bowing variations and gave many exercises for each on which to practice.

On Playing the Flute (1966), by Johann Joachim Quantz (1697-1773), written in 1752, has held the same position for flautists as has the Leopold Mozart treatise for violinists. Though about one-third of the book dealt with the flute, the remaining portion dealt with the performance practices of the day, making it invaluable source material.

Quantz (1966) believed that the tongue served the same purpose for flute players as the bow-stroke served for

violinists. He indicated three types of tonguing which were used in accordance with the nature of notes being played. These were the ti or di, tiri, and did'll(the double tongue). Quantz felt that tonguing on wind instruments must always be used in conformity with the aims of the composer as "this puts life into the notes"(p. 122). If the strokes were placed above quarter-notes(see Example No. 4a), ti was used in order to



Example No. 4. Johann Quantz Articulation Notations

get a sharp, short attack on the note. If an arc stood above two or more notes, Quantz indicated that the notes must be slurred(see Example No. 4b). Only the beginning of each slur needed to be tongued, generally with a less forceful di attack. In addition, Quantz counseled that sustained notes must be slurred, while quick, leaping notes must be detached. To avoid the rushing of fast passages, the first note of ascending, quick figures were to be stressed and held slightly. In slow passages, the notes were to be caressed "unless the composer wishes several notes to be briefly articulated to revive the listener who may have dozed off"(p. 166).

Damm(1983) stated, "the works of the early masters very seldom give articulation markings, for the musicians of the day had the freedom(and the knowledge!) to decide on these for themselves according to the mood of the music"(p. 50). This statement was in accordance with Johann Ernst Altenburg's Anleitung zur Trompeter--und Pauker-künst(Introduction to the Art of Trumpet and Kettledrum Playing, 1795), as reported by Enrico(1979). Altenburg felt that in sections where articulations were unnotated, ascending and leaping passages or arpeggio-like sections with skips should be played staccato (see Example No. 5a). Rapid and stepwise passages were

a)



b)



c)





Example No. 5. Altenburg Articulation Notations

usually legato(see Example No. 5b). In some figures, Altenburg directed that articulations should be mixed(see Example No. 5c) depending upon whether they occur in stepwise or larger intervals. As high notes need a stronger thrust of air than lower ones, Altenburg recommended that ascending passages be tongued and that descending passages be slurred. He instructed that when articulations were indicated in one section of a work, these articulations should be followed in analogous and parallel sections of the work, even when not indicated.

H.C. Robbins Landon(1939) is a renowned Franz J. Haydn scholar. In his foreword to Haydn's Divertimenti for Baryton, Viola, and Bass(composed in 1767) as reported by Bullock(1769), Landon offered some suggestions to help clear some of the confusion involved in interpreting articulations of Haydn. In many Haydn scores, only the first violin part contained complete articulation notations. Copyists of the time were expected to use the first violin part to complete the articulation of other parts. The order in which Haydn wrote articulations was the first violin, bass, oboes, and then horns. In a series of notes, Haydn would mark only the first few slurs and staccati, expecting the same articulation to be played throughout.

Dots under or over notes were often used in Haydn's music to prevent legato playing. They were also used to instruct the player not to allow the final note of a slurred group to be sustained for its written value. Wedges rather than dots were used to indicate staccato. A wedge shortened a note as well as giving it a slight accent.

In Haydn wind parts, when notes were repeated over a bar-line, a tie over the bar-line was understood. The sforzando mark was sometimes used to indicate that the player should articulate the second note. This was true in the music of most Classical composers. Other standard practices included slurring appoggiaturas to the note to which they belonged. The figure  was to be performed . Altenburg stated that all essential ornaments were to be played legato, whether or not so notated. Damm(1978), writing of Classical music in general and the music of W.A. Mozart in particular, wrote that sections articulated with dots only were often played too short by today's musicians. In unmarked sections, however, Damm and Apel(Harvard Dictionary, 1982) were in agreement that notes should be well differentiated or slightly detached.

The Romantic Period

There is very little literature concerning articulation notation during the Romantic Period and almost none concerning brass articulation. Two works of that period, Principles of Orchestration(1933) by Nicolas Rimsky-Korsakov and Treatise on Instrumentation(1948) by Hector Berlioz and expanded by Richard Strauss, have come to be looked upon as the most important sources of information concerning Romantic orchestration. Neither work dealt specifically with brass articulation, but both had sections that dealt with string

articulation. As many feel that modern brass articulations derive from string notations, the Rimsky-Korsakov and Berlioz-Strauss texts were included in this study.

Berlioz(1948) felt that "the manner of bowing is very important and greatly influences the sonority and expression of motives and melodies. It must be carefully indicated according to the nature of the idea rendered"(p. 19). Among the notations Berlioz demonstrated were marks for detached notes(see Example No. 6a), two-note slurs(see Example No. 6b), and extended slurs or legato(see Example No 6c). For the light détaché or staccato articulation(see Example Nos. 6d and 6e), the player was advised to use a succession of small strokes over the whole length of the bow, using only a small portion of the bow for each note. For pieces of a proud, magnificent character of moderate speed, Berlioz recommended the Grand détaché porté--the grand, broad staccato (see Example No. 6f). In this bowing, the bow was to have been struck at the string vigorously, allowing the string to vibrate after it had been struck. Berlioz also wrote of the special effects--such as the tremelo and the "undulating tremelo"--of Gluck(see Example Nos. 6g and 6h). In the undulating tremelo, a number of slurred notes were played on the same tone at a slow speed, with the bow remaining on the string.

In Rimsky-Korsakov's Principles of Orchestration(1933), methods of producing sounds on strings were lightly covered.

a) 

b) 

c) 

d) *Allegro* 

e) *Andante* 

f) 

g) 
p

h) 

Example No. 6. Berlioz Articulation Notations

Included were descriptions of legato, detached bowing, staccato, spiccato, portamento, martellato, light staccato, and saltendo bowings, as well as an explanation on the use of up-bows and down-bows. Of brass instruments, Rimsky-Korsakov wrote,

"brass instruments possess a remarkable capacity for swelling from pianissimo to fortissimo and reducing the tone inversely, the *sf* > *p* effect being excellent"(p. 23).

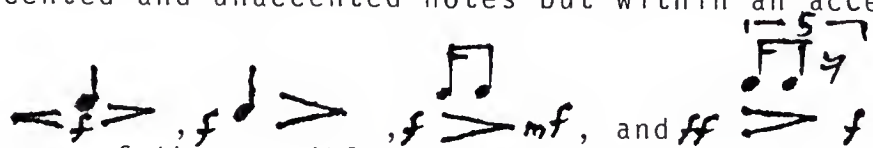
When asked to write an orchestration text, Strauss (Berlioz, 1948) indicated that there was no need, as Berlioz had already done so. Strauss put out an edition of the Berlioz treatise in which he added suggestions. Though Strauss added no specific articulations to Berlioz' list, he did write of how important articulation notation for string players was.

Therefore, dear fellow composers, watch the up-bow and down-bow! A small bowing mark at the right place is often more effective than the most eloquent expression mark such as "gay", "grazioso", "spirited", "smiling", "defiant", "furious", etc. Our worthy instrumentalists and their dear conductors pay very little attention to them. (p. 20)

20th-century Traditional Music

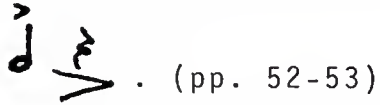
As Martino(1966) stated, there is much confusion as to how traditional music should be notated.

Some dictionaries make no distinction among the following signs: *sfz*, *sf*, > , \wedge , — . Notes so marked are to be performed with "special stress" or "sudden emphasis". But nowhere is there a statement concerning the method by which sudden emphasis or stress is to be achieved. Nowhere is it explicitly stated that notes marked in this manner are to be "louder than" their neighbors. In practice, the sign > is so interpreted that a change of dynamics results not only between accented and unaccented notes but within an accented note,

 *sfz*, *sf*, > , \wedge , — are some of the possible consequences of the following notation:



It is worth remarking that the accent mark did not imply continual diminuendo to Schoenberg, since in m. 51 of the Phantasy, Op. 47, he writes



Apel's Harvard Dictionary of Music(1982) is one of the most used reference books in the area of music. As with the Rimsky-Korsakov and Berlioz books on orchestration, brass articulation was hardly mentioned. There were, however, excellent descriptions on string articulations. The Harvard Dictionary instructed that legato(see Example No. 7a) should



Example No. 7. Apel Articulation Notations

have no perceptible interruption between notes. Leggiero(see Example No. 7b) was non-legato, with some space between notes. Portato bowing(see Example No. 7c) had yet more space, while staccato(see Example 7d) was even shorter. In legatissimo passages, notes were held for an instant along with the succeeding note(see Example No. 7e).

As indicated in the Harvard Dictionary, other bowings and their notations were as follows:



Détaché--strong, broad, equal, single-bowed strokes.



Martelé--short, strong, "hammered", quickly released strokes.



Sautillé--short, rapid, with a bounced-bow, in the middle of the bow.



Jeté--throwing the bow on the string so that it will bounce a number of times on the down-bow.



Staccato--a number of martelé strokes, the bow bouncing lightly.



Tremelo--moving the bow back and forth quickly.

Paul Hindemith was a noted composer and teacher. He briefly mentioned articulation in his Elementary Training for Musicians(1949). He felt that, as symbols of articulation, slurs tell the wind player to play without interruption. Hindemith gave a clear rendering of staccato notation(see






Example No. 8. Hindemith Articulation Notations

Example No 8a), though it differed from the Harvard Dictionary version. Hindemith stated that notes with dots "are to be sung or played with a shorter metric value than indicated,

followed by a rest"(p. 172). He regarded the wedge as a sign for intensification of the staccato(see Example No. 8b). A portato execution was implied by dots with a slur(see Example No. 8c). Hindemith felt that a slight lengthening of the tone is demanded by a dash or the word ten.(tenuto(see Example No. 8d).

Gardner Read, composer-in-residence at Boston University, wrote Music Notation: A Manual of Modern Practice(1964) to enable future composers to help musicians by being clear in their notation. It was also written for performers, conductors, and music theory majors who must be up-to-date in their knowledge of common practice. Read described the purpose of articulation signs as giving "individual notes their ultimate meaning"(p. 259).

Read divided accents into two categories: percussive, which implied strong accents, and pressure, which implied leaning on the note. The sign  (or  below the note) was a strong attack sign in the percussive class and was suitable only at a high dynamic level. The sign  indicated a fairly sharp attack and was good at almost any dynamic level. A staccato mark shortened a note's value. "In a slow to moderate tempo . . . the rest is small. When the time is fairly fast . . . the rest value is larger" (p. 260; see Example No. 9a). The wedge(see Example No. 9b) meant, in modern times, the maximum shortness possible. Read called the dash above or below the notehead the principal symbol of the pressure accent. By combining

a)

b)

Example No. 9. Read Articulation Notations

marks, "the present century has expanded unbelievably the permutation of expression marks"(p. 262). Read constructed a number of tables to help in the understanding of articulations (see Tables 1-4).

Table 1

Read Accent Use

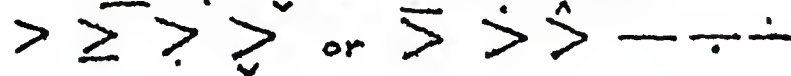
Strength

Accents Used

strong



medium



light



Table 2

Read Combined Accent Use







Articulation	Description
	very percussive, but short
	moderately percussive and short
	very percussive, but receiving full value
	moderately percussive with full value
	stressed, but quite short
	stressed and moderately short, separated from the next note

Table 3

Read Scale of Accent Terminology

Terms	Definitions
sforzando	$sf = >$ from $pppp$ to f , $sfz = >$ in ff , $sfff = >$ in fff
forzando	$fz = \wedge$ in mf or f , $ffz = \wedge$ in ff , $fffz = \wedge$ in fff
sforzato	$sfz = \triangle$ in mf or f , $sffz = \triangle$ in ff , $sfffz = \triangle$ in fff

Table 4

Read Table of Accents and Slurs

Written	Played
	
	
	
	
	
	

Blatter(1980) made a distinction between wind articulations and string articulations but made little distinction between woodwind and brass articulation. Blatter made particular mention of stress notations. For example, his definition of staccatissimo was one of a note shorter than the normal staccato but neither more nor less accented or stressed than staccato. The following were Blatter's wind articulation notations:



Staccato



Stressed and separated, non-legato



Staccatissimo



Legato tonguing with some stress,
but no separation



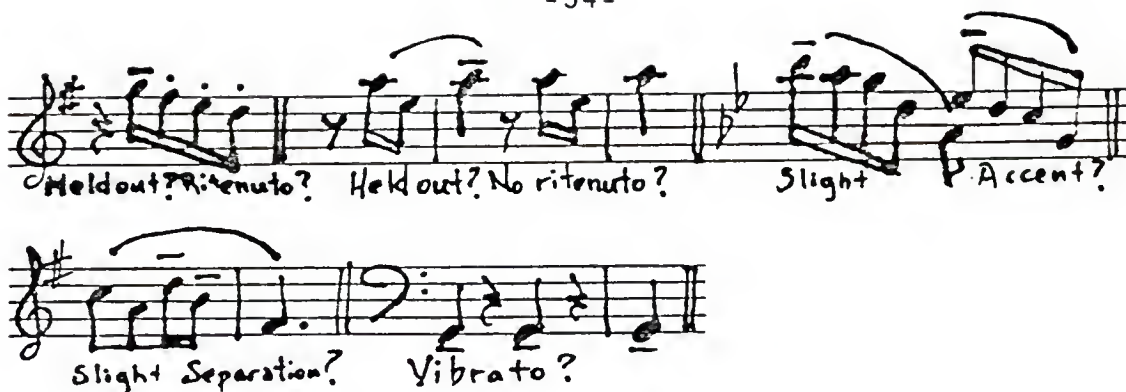
Legato tonguing with some stress,
and perceptible separation



Legato tonguing with no stress,
but perceptible separation

Far from giving articulation notations one definition each, Cole(1974) argued in favor of the ambiguity of articulation marks. He stated that the "interchangeability" of articulation notations is acceptable because we use marks according to the spirit rather than the letter. Cole noted that $>$ and \wedge are often interchanged and that the line (—) can be used to show five meanings(see Example No. 10).

In McBeth's Effective Performance of Band Music: Solutions to Specific Problems in the Performance of 20th Century Band Music(1972), many aspects of band performance were covered. In discussing wind instrument articulation,



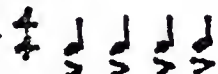




Example No. 10. Cole Articulation Notations

McBeth had some interesting comments.

Enter Pandora's Box! There are so many variations as to correct articulations that there is a dire need for standardization in this area. . . . Winds borrowed the markings from strings and tried to force-fit them. For example, any "off the string" articulation marking is transferred to the winds as "a separation of notes." The problem is that when an "off the string" articulation is used, the string is still vibrating and producing tone; but when notes are separated in the winds, there is no sound. (pp. 18-19)

According to McBeth, the accent $>$ has been written one way, but it could be performed either with or without separation. In order to determine how the major authorities in band music handled the major articulations, both in composing and conducting, he composed the following survey:

Describe how the following should be performed by wind players:

1.  In other words, what does the ($>$) mean?
2.  In other words, what does the ($—$) mean?
3.  In other words, what does the (\bullet) mean?
4.  In other words, what does the (\geq) mean?
5.  In other words, what does the (\wedge) mean?

Those who participated in the McBeth survey included some of the most important figures in band composing and conducting. They included John Barnes Chance, Frank Erickson, Howard Hanson, Martin Mailman, Vaclav Nelhybel, Vincent Persichetti, Richard Willis, Harold Arnoldi, Frederick Fennel, Joe Barry Mullins, James Nielson, John Paynter, William Revelli, and Clarence Sawhill.

In the following list, each of McBeth's articulations is listed separately. The list includes definitions and the name of the authority(ies) who ascribed to that definition.

(>)

1. Each note should be accented as attacked, but not shortened in value or separated from the next tone. (Chance, Erickson, Persichetti, Paynter)
2. This should indicate a simple accent on each note with the separation of one tone from the next. (Hanson, Mailman, Nielson, Fennel--with a variation)
3. This accent means to stress more diaphragmatically than tongued. (Arnoldi, Sawhill, Revelli--détaché style)
4. Only suggests some type of stress. (Mullins)

(—)

1. Usually face value of note is enough. (Sawhill, Nelhybel, Erickson, Mullins--long)
2. Connected. (Revelli, Paynter, Nielson, Fennel, Arnoldi, Mailman, Chance)
3. Full value with pressure on each note. (Willis)
4. Gloved pulsation with slight separation. (Persichetti)
5. Tenuto(held). (Hanson)

(•)

1. Notes shortened, the amount depending upon the speed of the piece. (Chance, Erickson, Hanson, Nelhybel, Willis, Arnoldi, Mullins, Nielson, Paynter, Revelli, Sawhill)
2. Short attack--a resonant pizzicato. (Mailman, Fennel)
3. Sharp attack and abrupt release of air. (Persichetti)

(≧)

1. Accent on beginning of note with full value. (Sawhill, Paynter, Nielson, Mullins, Nelhybel, Hanson, Erickson, Chance)
2. Somewhat marked accent, separated, but not much. (Revelli, Arnoldi)
3. Maximum sostenuto to each note before the next entrance. (Fennel)
4. An attack on the note with pressure through it. (Willis, Persichetti--who never uses it)
5. A slap pizzicato? (Mailman)

(^)

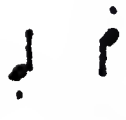

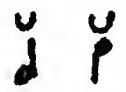



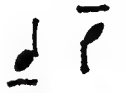


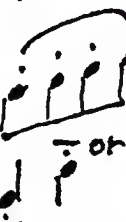
1. Accented the whole of its duration. (Chance, Revelli)
2. A heavier accent than > . (Erickson)
3. The heaviest accent, not tenuto. (Hanson, Mailman, Nelhybel, Persichetti, Willis, Arnoldi, Mullins, Nielson, Paynter, Sawhill)
4. Tenuto, but with emphasis on the attack. (Fennel)

Kurt Stone is best known for his work in cataloguing and standardizing modern musical notation. In Music Notation in the Twentieth Century: A Practical Guidebook(1980), Stone included what he felt were the traditional signs that were, to his mind, most universally understood(see Table 5).

Chew(1980) pointed to the beams connecting eighth and sixteenth notes as articulation indications. He believed

Table 5

Stone Traditional Articulation Notations

Articulations	Definitions
	light staccato(for staccatissimo, use the staccato dot and the indication staccatissimo or staccatiss.)
	hard, heavy staccato
	unaccented(weak beat)
	strong beat
	normal accent
	strong accent
	tenuto
	strong tenuto
	accented tenuto
	non-legato(brief tenuto)

that "the primary sense of the beam is rhythmic, since the first of any group of notes joined together is stressed" (p. 389).

Modern or Avant-garde Music

With the advent of avant-garde music, many composers have felt the need to invent new notations to depict new types of sounds. Within the last 15 years, composers and performers have attempted to standardize modern notations.

Brevig(1971) catalogued the notational techniques used in six trombone compositions by composers Larry Austin, Luciano Berio, Jacob Druckman, William Hellerman, Alcides Lanza, and Walter Ross. These included a list of articulation notations with Brevig's preferences(see Table 6).





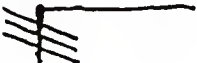

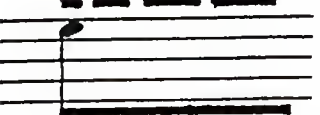
Table 6

Brevig Modern Articulation Notations

Notations	Playing Directions
	Duration six seconds
	Sustained note
	Length of beam indicates duration
	Indicates a loud, implosive clicking of the tongue into the trombone

(table continues)

Table 6--continued.

Notations	Playing Directions
	Indicates pitches to be sung while playing
	Vocal sounds, at the given pitch, produced with the lips on the mouthpiece, generally while playing
	Vocal sounds produced with lips away from the mouthpiece
	Indicates non-vocalized sounds(loud whispers), to be articulated into the trombone
	Fluttertongue
	Fluttertongue
	Begin fluttertongue gradually

Perantoni(1973) listed avant-garde techniques for the tuba. He noted many examples(see Table 7).

In October, 1974, the International Conference on New Musical Notation met at the University of Ghent, Belgium. The group consisted of 79 internationally respected composers, performers, and conductors. The report of the conference by Sabbe, Stone, and Warfield(1975) attempted to standardize new notations in use. In trying to standardize articulation notation the report stated



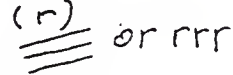



Table 7

Perantoni Modern Articulation Notations

Notations	Playing Instructions
	Blow into instrument directly without the mouthpiece
	Remove the mouthpiece and turn it over. Holding it slightly away from the instrument, blow to create a "swoosh" sound
	Inhale air
	Exhale air
	Sing indicated pitch through tuba
	Blow through the tuba, producing a rising and falling pitch
	Note played with valve half-depressed
	A chromatic or articulated glissando (as opposed to the smooth glissando of a string instrument)
	Tonguing without producing pitch
	Methods of attack and release articulation ("h" or "t" at beginning and "d" at end)

(table continues)

Table 7--continued.

Notations	Playing Instructions
didl	Double-tonguing
	Fluttertongue
	Fluttertongue without tone
	Fluttertongue on the letter "r"
	Slap the mouthpiece with the hand
	Note of short duration
	Note of long duration


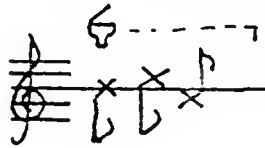
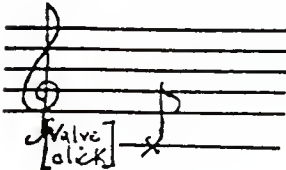
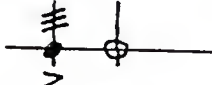



No unambiguous, logical progression of degrees of articulation(such as from staccato via tenuto to different accents), nor of any combination of such modifiers, has emerged so far, nor have any attempts to devise more precise markings than the traditional ones established themselves. (p. 51)

The conference did endorse, however, a series of notations for avant-garde brass techniques(see Table 8).

Risatti(1975) listed notational effects used in particular pieces. Among others, Risatti listed articulation notations by Edgar Varese, Francesco Rennisi, Krzysztof Penderecki, Zbigniew Rudzinski, Witold Szalonek, Kamirez Serocki, Ralph Shapey, Sergio Cervetti, Cornelius Cardew, Werner Heider, Karlheinz Stockhausen, George Crumb, and Pierre Boulez.


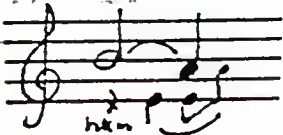
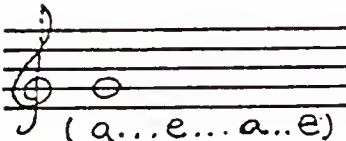
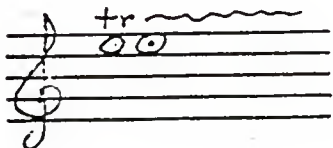
Table 8

Ghent Conference Endorsed Notations

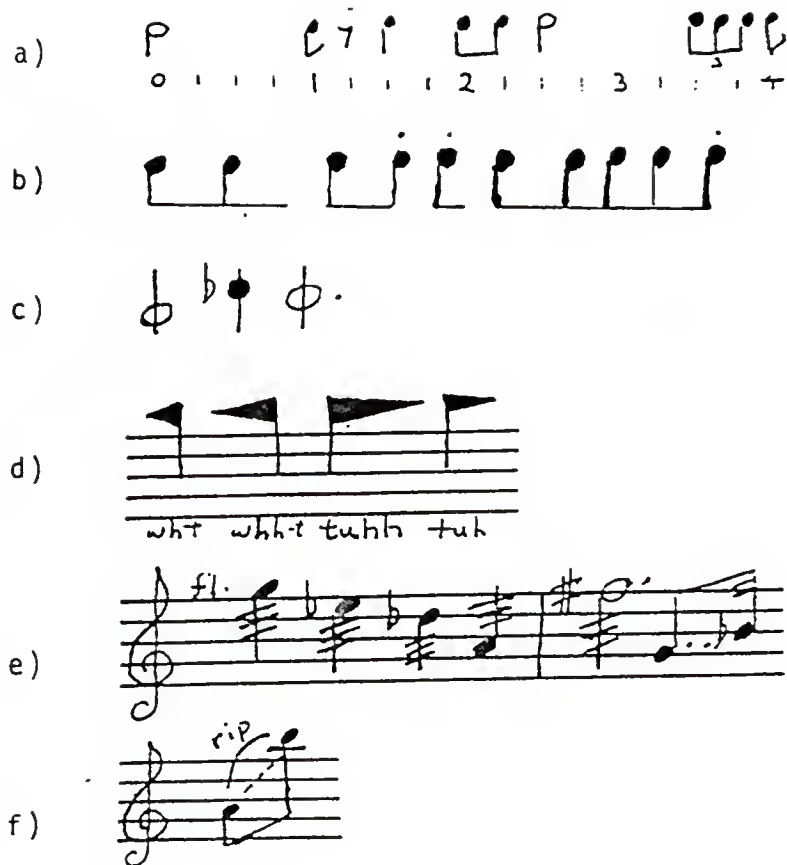
Notations	Descriptions
	Mouthpiece pop(specific pitch)
	Mouthpiece pop(unspecified pitch)
	Valve click(and other unpitched sounds)
	Breathy air sounds(embouchure not vibrating)-- approximate pitch
	Breathy air sounds(embouchure not vibrating)-- unspecified pitch
	Smacking sound
	Cracked tone(add "K" to dynamic)
	Glissandi--smooth(including half-valve technique)

(table continues)



Table 8--continued.

Notations	Descriptions
	<p>Glissandi--"rip"(arpeggiato); it is advisable to add the word "rip" at first appearance</p>
	<p>Humming while playing</p>
	<p>Tongue positions(to change timbre)</p>
	<p>Timbral trill(same pitch)</p>

Kurt Stone, the Director of the Index of New Musical Notation of the New York Public Library, was an editor of the "International Conference on New Music Report"(Sabbe, et al., 1975). In his text, Music Notation in the Twentieth Century: A Practical Guidebook(1980). Stone accepted the findings of the International Conference as well as providing other notational suggestions. In proportional notation(see Example No. 11a), horizontal distances were equal to the time value of specific notes. The only notations needed in proportional notations were noteheads to indicate pitches and a single beam to indicate how long to hold each pitch. Where there was no beam there was no sound(see Example No. 11b).



Example No. 11. Stone Modern Articulation Notations

Stone recommended that diamond-shaped noteheads() be used only for manipulations of notes(such as half-valved notes). He further recommended the use of x-shaped noteheads() for approximate or indeterminate pitches. Stone gave the generic symbol for breath signs--created by blowing air through an instrument by breathing in and out of that instrument(see Example Nos. 11c and 11d), and he gave recommendations for pitched fluttertongued notations(see Example No. 11e). Stone gave his recommendations, as well, for a "rip" and an arpeggiated glissando(see Example No. 11f).

Jazz

Jazz has become an important area of study for high school and college musicians. "Whether or not the incidence of high school jazz bands is still growing wildly is conjecture. But . . . there are few areas or regions in this country that have no jazz band activity at the high school level" (Berry, 1979, p. 7). It was important, therefore, that a guide to performance of articulation notations included those used by jazz composers and arrangers.

Betton(1971) has been able to compile a list of jazz and stage band articulations entitled "The Standardization of Stage Band Articulations." In addition Biasini(1983), Terry and Rizzo(1977), Kuzmich and Bash(1984), La Porta(1965), and Lawn(1982) have discussed and/or defined jazz notations.

The following list represented the jazz notations that were commonly in use. It included the name or names by which the notations were known and synthesized the definitions by the mentioned authors. Any divergent opinions were noted.



Heavy accent, accent(Biasini), horizontal accent(Terry and Rizzo). This note should be given a hard "doo" attack and held for its full value.



Heavy accent, housetop(Kuzmich and Bash), dot(La Porta). This note is given a very hard "too" attack and is held less than its full value.



Staccato, dit(La Porta). Shorten the note, clearly separating it from the following notes.



Legato, doo(La Porta). Use a smooth "doo" attack, and play the note full value.



Heavy accent/separate. The note is given a hard "too" attack and is not held full value (Biasini), or is as short as possible (Betton).



The shake. This note is played like a lip trill with the note moving upwards.



Lip trill(Betton). Play this in a similar manner to the shake, but with more control.



Wide lip trill(Betton). Play this the same as a lip trill, but slower and with a wide interval.



The flip. Sound the note, then raise the pitch, and then drop into the following note.



(Betton)

or



(Kuzmich)

or



(Terry)

Ascending smear. Slide into the note from below and reach the correct pitch just before the next note without robbing from the preceding note.



Doit. Sound the note, then gliss upwards to an indefinite pitch.



Gliss up. Slide into the note from below, with the length of slide determined by the length of the printed notation.



Gliss down. These are the reverse of the gliss up, with the length of the slide determined by the length of the printed notation.

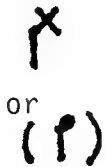
Fall off.



Lift. Enter the note by a quick diatonic or chromatic scale, with length of scale determined by the length of the notation.

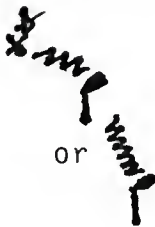


Spill. This is the reverse of the lift, with the length of the scale determined by the length of the notation.



Indefinite sound. Indefinite pitch played so that the note is really felt rather than heard.

Ghost note.



The plop. Play with a very rapid gliss from an indefinite higher note to a written note.

(Biasini)



Rip. Shorten the lower note, then quickly play a gliss to the higher note, accenting the higher note.

(Terry and Rizzo)



Du. Play with a hand or a plunger mute partially over the bell(usually play with "wah").



Wah. Play with a full tone, not muffled(after "du").

Summary

After reviewing the literature, one could have come to the conclusion that we of this era were much more knowledgeable about the correct manner to perform articulations in music of the 17th and 18th centuries than we were about the music of the 19th and 20th centuries. The Bendinelli and Fantini trumpet treatises gave clear indications on how to tongue Baroque music. As for the practice of double-dotting notes, it was chronicled by many including Collins and Enrico.

The use of articulation marks increased during the Classical Period, but the treatises of Quantz, Mozart, and Altenburg helped further our knowledge of how music was to be performed. Performers have been helped considerably by the absence of disagreements among major writers of that time.

It was in the music of the Romantic Period that confusion about proper performance techniques occurred. The fact that the major treatises of the period(Rimsky-Korsakov, Berlioz-Strauss) were written for the use of composers, not performers as in the Classical Period, may have been a contributing factor to the ambiguity. Another factor may have been that though the major writers of the day gave very clear directions on how string music should have been bowed, they gave very few directions instructing how brass music should have been tongued. It is possible that the composers felt the notation could have been interchanged(between strings and winds) without confusion. It is also possible that there were unwritten rules on tonguing that are not known today. Finally

it is possible that composers of the day did not care if wind articulation was ragged, uneven, and inconsistent from one performance to the next (this last supposition seems unlikely). In any event, there is confusion about the transference of Romantic string notation to the winds.

It was only natural that 20th-century composers and performers, building on the confusion of the Romantic Period, should have had major differences of opinion on how specific notations should have been articulated. As the works of Martino and McBeth clearly showed, authorities often had diametrically opposed views on what articulation marks meant. The Harvard Dictionary of Music (Apel, 1982) and Paul Hindemith (1949), for example, differed on the length of staccato-dotted notes. Some felt that the tenuto mark meant legato without accent, while others felt sure that the mark implied pressure.

It is interesting to note that when composers and performers of 20th-century and avant-garde music met at the Ghent Conference in 1974, except for a few special effects, they found it impossible to agree on how articulations should be notated. With small variations, however, most jazz authorities studied agreed on the definitions of jazz articulation notations. In this area, performers had a good chance of meeting composer expectations, and composers could be reasonably sure that their notations would be played correctly. It was hoped that a careful study of contemporary performance practices of standard music would lend the same clarity to standard notation.

CHAPTER THREE METHODOLOGY

General Research Design

The research design of this study revolved around the study's research question and three hypotheses. To answer the research question, authorities' views of articulation during the past four centuries were examined. These views were stated in the review of literature in Chapter Two. In order to test the first hypothesis, research findings were examined, as well as the written comments of contemporary composers and the results of a survey of composers dealing with articulation. In order to test the second hypothesis, a survey of brass articulation preferences of brass performers was conducted. In order to test the third hypothesis, a number of recorded examples of music of a variety of musical eras and periods were analyzed. This involved listening for the type of articulation used in the performance of each note played by each brass player in each recorded example.

A musical guide showing an overview of brass articulation was developed based on the researched findings. Further information concerning the design of the study can be found in this study's Introduction(Chapter One).

Instrumentation and Applications

This study utilized two survey instruments: one to determine how composers notate articulations, and the second to determine how brass performers perceive articulation notations. Henceforth, the former will be referred to as a composer survey, and the latter will be referred to as a performer survey.

The composer survey(see Appendix A) was formulated so as to give composers the opportunity to demonstrate what articulation notations they would use to notate individually described articulations. The author composed a two-measure musical phrase in order to present a rhythmically complex example in a relatively small musical space. This allowed composers to show how they notated articulations in different configurations but would keep the amount of time needed to complete the survey within a practical range.

A series of 15 articulation descriptions was formulated. These descriptions were designed to describe almost all of the possible permutations of the three elements of articulation as described by Reed(personal communication, July 3, 1984)--the attack, how long a note is sustained, and the dynamic level of the attack and the sostenuto.

The composer survey was sent to 72 American brass composers suggested by members of the graduate music faculty of the University of Florida. Criteria for selection included such factors as faculty members' regard for composers' works, the extent of brass usage in composers' works, and

the likelihood of receiving a response to the survey. Forms were sent to the composers during the last week of June, 1984, with follow-up letters sent to non-responding composers during July and September, 1984. Twenty-eight composers chose to complete the articulation survey-form, for a response rate of 39%. Three composers who did not complete the form did respond with thoughtful letters concerning articulation, while one composer contributed his feelings on the subject through a personal interview.

In July, 1985, those 40 composers who did not respond to the composer survey were sent a performer survey(see Appendix B), with instructions that they could feel free to change any written notations to fit their conceptions as to how articulations should be notated. Fourteen composers chose to complete the performer survey, for a response rate of 35%. Of the original 72 composers included in the survey, 42 responded to one of the two survey-forms, for an overall response rate of 58%.

The performer survey used the same 15 articulation descriptions as used in the composer survey. For each description, performers were asked to choose among several notated examples of a musical phrase and select the notation that best exemplified the written description of each articulation.

In order to determine notated examples for each description in the performer survey, tabulated results from the 28 completed composer survey-forms were used. The musical

example in the composer survey-form was simplified in the performer form in order to keep the performer survey within a manageable length.

Sample Population

The study's performer survey was administered to approximately 280 participants of the 1985 New York Conference for Brass Scholarships. Those who attended represented a wide spectrum of brass musicians. It is assumed that most were from the northeastern United States, though musicians attended from throughout the country. The improvement of brass playing was an assumed bond of those who attended.

Performer survey-forms were handed to those entering through the main doors of the Roosevelt Hotel Ballroom, in New York City, the major performing hall of the conference, during the first two days of the three-day conference. Forms were handed to all who indicated that they were a brass musician and/or a conductor. Two hundred-eight forms were successfully completed for an approximate response rate of 74%. Of these, two gave no classifying information. Of the others, 94 were from trumpet players, 19 from French horn players, 65 from trombone players, 17 from tuba players, 9 from euphonium players, and 2 were from non-brass players who were conductors.

Analysis of Data

To determine the accuracy of this study's first hypothesis, that contemporary composers would demonstrate different conceptions of how various brass articulations should be notated, completed composer survey-forms were analyzed to determine each composer's individual preferences. The information was then gathered and synthesized. For the purpose of this study, if greater than 75% of the 42 studied composers demonstrated the same concept of how an articulation was to be notated, that was considered adequate information to accept the study's first hypothesis.

This study's second hypothesis, that brass performers would indicate no clear preferences on how individual brass articulations should be notated, was tested by a survey of 208 brass performers. A chi-square analysis was performed to determine if brass performer preferences were significantly different at the .05 probability level.

This study's third hypothesis, that major conductors would demonstrate a common practice of performing brass articulation notations, was tested by the author carefully listening to a variety of recorded examples of 11 works.

Works included

J.S. Bach	<u>Brandenburg Concerto in F</u> (3rd Movement)
F.J. Haydn	<u>Trumpet Concerto</u> (1st Movement)
L. Beethoven	<u>Symphony No. 5 in C Minor</u> (4th Movement)
H. Berlioz	<u>Fantastic Symphony</u> (5th Movement)
R. Wagner	<u>Overture to Die Meistersinger</u>

Rimsky-Korsakov	<u>Capriccio Español</u> (5th Movement)
G. Mahler	<u>Symphony No. 1 in D</u> (4th Movement)
J.P. Sousa	<u>The Stars and Stripes Forever</u>
C. Debussy	<u>Nocturnes</u> ("Fêtes")
I. Stravinsky	<u>Rite of Spring</u> ("Danse Sacre")
A. Berg	<u>Wozzeck</u> ("Soldiers' March")

The author analyzed each available recording of the above works in the music libraries of the University of Florida, the University of Maine at Orono, the Queens Borough Public Library in New York City, the author's private library, and other sources where available, to determine how each excerpt was articulated. To analyze the articulation usage of conductors, 18 different articulations were numerically identified.

After listening to each recorded excerpt, the author identified each brass note with a number indicating the articulation used(see Appendix C). For each recorded work studied, the author described the articulation practices demonstrated. After all recordings were described, an attempt was made to report on common threads running through all performances. If over half of the examples had no similarities, the hypothesis was considered disproved.

This study's major purpose, to develop an articulation guide for use by contemporary composers and performers of standard brass music, was fulfilled by compiling information covered during the course of the study. Suggestions were

given on how to perform music of different musical periods. Suggestions for composers were based on performer surveys. A final chapter presented a summary, discussion, conclusions, and recommendations related to the study's findings.

CHAPTER FOUR CONTEMPORARY BRASS COMPOSER NOTATIONAL PREFERENCES

Musical notation is a representative language. A performer needs to understand notational signs dealing with pitch, duration, volume, phrasing, and articulation in order to fulfill composer intentions. In an ideal situation, composers would share identical concepts of how to notate these musical components. Performers would then be able to learn the standard method of playing notations. In order to determine if contemporary American composers share a standardized method of notating brass articulations, the following hypothesis was formulated: Contemporary American composers will demonstrate different conceptions of how brass articulations should be notated.

Instrument

To test the above hypothesis, a composer survey was formulated in order to give composers the opportunity to demonstrate what articulation notations they would use to notate individually described articulations. The author composed a two-measure musical phrase(see Example No. 12) in order to present a rhythmically complex example within a relatively small musical space. This allowed composers to show how they notated articulations in different configurations but would keep the amount of time needed to complete the survey within a practical time range.



Example No. 12. Composer Survey Musical Phrase

A series of 15 articulation descriptions was formulated. These descriptions were designed to describe almost all of the possible permutations of the three elements of articulation(the attack, how long a note is sustained, and the dynamic level of the attack and the sostenuto). The descriptions used were as follows:

1. Notes receive full value(with each note barely separated from the next), with loud attacks and quick decrescendos.
2. Notes receive full value(with a minimum of space between notes), without loud attacks.
3. Notes shortened in value(each separated from the next), without loud attacks.
4. Notes shortened in value(each separated from the next), with loud attacks.
5. Notes receive full value, with notes louder than normal within the prevailing dynamic(notes accented for the whole of their duration).
6. Notes shortened in value, receiving very loud attacks, with only slight diminuendos.
7. Notes receive full value, with very loud attacks, with quick and large diminuendos.
8. Notes receive full value, with each note stressed or leaned upon(perhaps with each note receiving a slight crescendo).
9. Notes are slightly separated, receiving forceful attacks with slight decays.
10. Notes are shortened in value, with very loud attacks and quick diminuendos.

11. Notes receive slight or some separation, with each note stressed or leaned on (a very slight crescendo on each note).
12. Notes receive full value with no separation, receiving diaphragmatic stress, rather than articulated accents.
13. Notes receive some separation and diaphragmatic stress, rather than articulated accents.
14. Notes are a flow of sound with the beginning of each note barely articulated.
15. Notes are one flow of sound, with no breaks between them.

The composer survey (see Appendix A) was sent to 72 American brass composers suggested by members of the graduate music faculty of the University of Florida. Criteria for selection included such factors as faculty members' regard for composers' works, the extent of brass usage in composers' works, and the likelihood of receiving a response to the survey. Forms were sent to the composers during the last week of June, 1984, with follow-up letters sent to non-responding composers during July and September, 1984.

Twenty-eight composers chose to complete the articulation survey-form, for a response rate of 39%. Three composers who did not complete the survey-form did respond with thoughtful letters concerning articulation, while one composer contributed his feelings on the subject through a personal interview.

In July, 1985, those 40 composers who did not respond to the composer survey were sent a performer survey (see Appendix B), with instructions that they could feel free to

change any written notations to fit their conceptions as to how articulations should be notated. Fourteen composers chose to complete the performer survey, for a response rate of 35%. Of the original 72 composers included in the survey, 42 responded to one of the two survey-forms, for an overall response rate of 58%.

The articulation notations used by the 42 composers who completed either the composer or performer survey were listed and totaled. For the purpose of this study, if 75% of the composers who filled out surveys agreed on a specific notation for a particular articulation, the hypothesis that contemporary American composers will demonstrate different conceptions of how brass articulations should be notated would have been disproved.

Composer Survey Results

In response to the survey's first articulation example-- notes receive full value (with each note barely separated from the next) with loud attacks and quick decrescendos--45.2% of the 42 responding composers notated the passage with normal accents (>). Forte-pianos (fp) were placed under notes of 19.1% of the passages, while sforzando markings (sfz) were placed under 14.3% of the passages. Each of the remaining notations (21.4%) was used by fewer than 10% of the composers. For articulation one, hypothesis one was not rejected.

The survey's second articulation--notes receive full value (with a minimum of space between notes), without loud

attacks--had 42.9% of the composers choosing legato marks (—), and 40.5% of the composers choosing to leave the example without any articulation marks. Each of the remaining notations(16.6%) was used by fewer than 10% of the composers. For articulation two, hypothesis one was not rejected.

Staccato marks(•) were used by 69.8% of composers to notate the third articulation--notes shortened in value(each separated from the next), without loud attacks. A combination of legato and staccato marks(—•) was used by 14.0% of composers, and the written description "detached" was used under the musical example in 11.6% of composer responses. Though the total number of composers using staccato marks to describe this description was a good majority, by the established criterion, hypothesis one was not rejected for the third articulation.

In response to the survey's fourth articulation--notes shortened in value(each separated from the next), with loud attacks--47.6% of responding composers notated the musical passage with a combination of staccato and normal accent marks (>). None of the other notations used to describe the fourth articulation were used by more than 10% of the composers. For articulation four, hypothesis one was not rejected.



For articulation five--notes receive full value, with notes louder than normal within the prevailing dynamic (notes accented for the whole of their duration)--37.1% of composers notated the musical passage with a combination of normal accents and legato marks(≥). The normal accent was



used by 14.3% of composers as was the dynamic mark of forte (f) with no articulation marks. The remaining 34.1% of notations were each notated by fewer than 10% of the composers. For articulation five, hypothesis one was not rejected.



The survey's sixth articulation--notes shortened in value, receiving very loud attacks, with only slight diminuendos--had 28.2% of responding composers notating the musical example with a combination of normal accents and staccato marks(>), 15.4% of composers notating the example with circumflex accents(^), 15.4% of composers writing a sforzando marking under each note(sfz), and had 12.8% of composers notating the example with a combination of circumflex accents and staccato marks(^). Each of the remaining notations (28.2%) was notated by fewer than 10% of the composers. For articulation six, hypothesis one was not rejected.

The combination of legato marks and sforzando signs(~~sfz~~) occurred in 22.2% of the notated examples for the survey's seventh articulation--notes receive full value, with very loud attacks, with quick and large diminuendos. Composers used the combination of the dynamic signs of forte-piano(fp) under each note along with the written description "bell-tones" in 16.7% of the responses. A sforzando mark(sfz) was also used in 16.7% of the responses. No other of the 44.4% of responses was used by more than two composers. Hypothesis one was not rejected for articulation seven.



For the survey's eighth description--notes receive full value, with each note stressed or leaned upon(perhaps with


each note receiving a slight crescendo)--35.5% of composers used legato marks, 16.1% used a combination of legato marks and crescendo signs() under each note, and 16.1% used just crescendo signs() under each note. None of the remaining notations used(29.4%) was used by 10% of the composers. For the eighth articulation, hypothesis one was not rejected.



Three separate notations were equally popular among responding composers to describe the survey's ninth articulation-- notes are slightly separated, receiving forceful attacks with slight decays. The normal accent mark used by itself, the normal accent with a staccato mark(), and a combination of staccato marks with the legato mark and the normal accent () each garnered 14.3% of composer preferences. The word "marcato" used under the musical example was used by 11.4% of composers, as was the use of the word "marcato" with normal accents, and use of sforzando marks under each note. None of the remaining 22.9% of notations used occurred more than once. For the ninth articulation, hypothesis one was not rejected.

For "notes are shortened in value, with very loud attacks and quick diminuendos," the survey's tenth articulation, 25.6% of responding composers chose a combination of staccato marks with sforzando signs(). Next in popularity was a combination of circumflex accents and sforzando signs() and a combination of normal accents and staccato marks, each receiving 12.8% of responding composer preferences. None of the remaining notations(48.8%) was used by 10% of the


composers. For the tenth articulation, hypothesis one was not rejected.

The survey's 11th articulation--notes receive slight or some separation with each note stressed or leaned on(a very slight crescendo on each note)--had 31.3% of responding composers using crescendo signs()under each note. The second most popular choice was a combination of staccato marks and legato marks() , with 18.8% indicating that notation, and the third choice was the use of legato marks alone, with a 15.6% preference. None of the remaining 34.3% of articulations used by composers was used by more than 10%. For the 11th articulation, hypothesis one was not rejected.

For the 12th articulation--notes receive full value with no separation, receiving diaphragmatic stress, rather than articulated accents--composers had two clear preferences. The use of legato marks over a slur() was indicated by 42.9% of composers, while the use of normal accents was indicated by 20.0% of composers. None of the remaining notations (37.1%) was given by 10% of the responding composers. For the 12th articulation, hypothesis one was not rejected.

The survey's 13th articulation--notes receive some separation and diaphragmatic stress, rather than articulated accents--had two notations which were equally preferred by composers. Legato marks with staccato marks() and staccato marks over a slur() were each used by 25.8% of responding composers. Legato marks by themselves were used by 12.9% of composers. None of the remaining 35.5% of

notations gathered support from more than 10% of the composers. For the 13th articulation, hypothesis one was not rejected.

Legatos over a slur() gathered the most support (33.3%) among composers for the 14th articulation--notes are a flow of sound with the beginning of each note barely articulated. The written description "sostenuto" was used by 11.9% of the composers. The majority of notations for this example(54.8%) were each used by fewer than 10% of the composers. For the 14th articulation, hypothesis one was not rejected.

For the final articulation--notes are one flow of sound, with no breaks between them--79.0% of the responding composers notated the musical example with a slur. A slur with the written description "legatissimo" was used by 10.5% of composers. The remaining 10.5% was split among several preferences. For the 15th articulation, hypothesis one was rejected.

The hypothesis that contemporary American composers will demonstrate different conceptions of how brass articulations should be notated was not rejected. In just two articulation examples, performers without advance knowledge of how specific composers notate individual articulations had a better than 50% chance of knowing what articulation a composer desired for an individual notation. In the remaining 13 examples, composers failed to show a majority preference for one notation, and only the 15th articulation displayed a 75% composer preference for one notation(the slur).

Guide to Individual Composer Articulation Notation Usage

As a result of this part of the study, a guide to composer articulation notation intentions was assembled to give performers the opportunity to discover what composers actually mean when they use articulation notations(see Appendix D). It includes a selected group of contemporary American composers. The included entries in this guide come from four sources: 1) a composer articulation survey distributed to 72 American composers; 2) a performer survey distributed to composers who did not complete the first survey; 3)the book Effective Performance of Band Music by W. Francis McBeth(1972); and 4) a personal interview with Vaclav Nelhybel. The information source for each composer's notations has been listed in the guide.

Summary

Forty-two contemporary American composers answered a survey-form dealing with brass articulation notation. Except for the use of a slur, there was no consensus on how articulations should be notated. As it would be impossible for performers to learn one standard definition for notations, a guide to individual composer articulation notation usage was assembled(see Appendix D). It is hoped that this guide will prove to be a valuable source to provide insight into composer intentions.

CHAPTER FIVE PERFORMER NOTATIONAL PREFERENCES

Composers have personal preferences as to how certain articulations are to be notated, but, as shown in this study's composer survey, they do not share their notational preferences. This makes it virtually impossible for performers to meet composer intentions. If performers share a common conception of how individual articulations should be notated, however, it would be possible for composers to tailor their articulation usage to fit the performers' conceptions. In order to determine if such conceptions exist, the following hypothesis was formulated: Brass performers will indicate no clear preferences on how individual brass articulations should be notated.

Performer Survey Description

In order to test the hypothesis that performers will indicate no clear preferences on how brass articulations should be notated, a performer survey was formulated. This survey used the same 15 articulation descriptions as used as part of this study's composer survey(see pp. 58-59), with the exception that articulation numbers seven and eight were inadvertently reversed. In the performer survey, therefore, the seventh articulation was that notes receive full value, with each note stressed or leaned upon(perhaps with each

note receiving a slight crescendo). The eighth description was that notes receive full value, with very loud attacks, with quick and large diminuendos(see Appendix B). For each articulation description, performers were asked to choose among several notated examples of a musical phrase and select the notation that best exemplified the written description.

In order to determine notated examples for each written description in the performer survey, tabulated results from the composer survey were used. Any articulation notation for each example that occurred more than once in a composer survey was included in the performer survey as a possible notation for that description. The musical example was simplified in the performer survey-form(see Example No. 13) in order to keep the performer survey-form within a manageable length.



Example No. 13. Performer Survey Musical Example

The performer survey was administered to 280 of those attending the New York Conference for Brass Scholarships (N.Y.C.F.B.S.) Each year, the N.Y.C.F.B.S. holds a three-day conference where many fine brass musicians give concerts and clinics, and where brass players have an opportunity to attend exhibits displayed by brass instrument manufacturers and music publishers. The purpose of this conference is to

raise money to provide promising brass students summer training. Though it is assumed that most who attended were from the northeastern United States, musicians were present from throughout the country and represented a wide spectrum of brass musicians. The assumed common bond of all present was a commitment to the improvement of brass playing.

The performer survey was distributed to approximately 280 participants of the N.Y.C.F.B.S. Forms were handed to those entering through the main doors of the Roosevelt Hotel Ballroom in New York City, the major performing hall of the conference, during the first two days of the conference. Two hundred-eight forms were correctly completed for an approximate response rate of 74%. Of these, two gave no classifying information. Of the others, 94(45%) were from trumpet players, 19(9%) were from French horn players, 65(31%) were from trombone players, 17(8%) were from tuba players, 9(4%) were from euphonium players, 2 were from non-brass players who were conductors(1%). One per cent of the population gave no classifying information(for a 99% total population due to a rounding of percentages).

One hundred-nine, or 52%, of those who returned survey forms were from 14 to 29 years old, 59(28%) were from 30 to 45 years old, while 38, or 18%, were older than 45 years old (one per cent gave no classifying information for a total 99% due to a rounding of percentages). Of those who returned the survey-form, 104 considered themselves to be professional musicians, or 50%, 39 considered themselves as college

musicians, or 19%, 37 considered themselves as adult amateurs, or 18%, and 26 were high school students, or 13%. One per cent gave no classifying information(for a 101% total population due to rounding of percentages). (See Table 9)

To determine the accuracy of the hypothesis that brass performers would indicate no clear preferences on how individual brass articulations should be notated, performer survey results were examined. A chi-square analysis was performed to determine if brass performer preferences were significantly different at the .05 probability level. Performers were asked to circle the musical notation that best exemplified each written description of an articulation. Descriptions where respondents chose more than one notation, wrote in their own notations, or added to existing notations were discounted.

Performer Survey Results

As can be seen in Table 10, the findings for all 15 articulation descriptions were significant at the .05 probability level. The hypothesis that brass performers will indicate no clear preferences on how individual brass articulations should be notated was rejected.

In response to the performer survey's first articulation-- notes receive full value(with each note barely separated from the next), with loud attacks and quick decrescendos--the second and third notations received almost equal support. As can be seen in Table 10, forte-piano(fp) written under

Table 9

Breakdown of Performer Survey Population Respondents (n=208)

Instrument	Professional			Amateur			College		H.S.	
	NA ^a	NB ^b	NC ^c	NA ^a	NB ^b	NC ^c	NA ^a	NB ^b	NA ^a	Total
Trumpet	15(7.2%)	19(9.1%)	18(8.7%)	5(2.4%)	6(2.9%)	11(5.3%)	10(4.8%)	--	10(4.8%)	94(45.2%)*
French Horn	4(1.9%)	3(1.4%)	1(0.5%)	--	1(0.5%)	--	4(1.9%)	1(0.5%)	5(2.4%)	19(9.1%)*
Trombone	10(4.8%)	16(7.7%)	3(1.4%)	4(1.9%)	1(0.5%)	4(1.9%)	19(9.1%)	--	8(3.8%)	65(31.3%)*
Tuba	3(1.4%)	17(8.2%)	--	2(1.0%)	2(1.0%)	--	2(1.0%)	--	1(0.5%)	17(8.2%)*
Euphonium	2(1.0%)	1(0.5%)	--	--	--	1(0.5%)	3(1.4%)	--	2(1.0%)	9(4.3%)*
Other	--	2(1.0%)	--	--	--	--	--	--	--	2(1.0%)*
No Information	--	--	--	--	--	--	--	--	--	2(1.0%)*

Note. Percentages were determined in allcases with n=208

^aAges 14-29

^bAges 30-45

^cAges over 45

*Total of percentages comes to 100.1% due to rounding

Table 10

Results of Chi-Square Analysis of Responses of Brass
Players to 15 Articulation Descriptions(n=208)

Description	NA ^a (%) [*]	NB ^b (%) [*]	NC ^c (%) [*]	ND ^d (%) [*]	NE ^e (%) [*]	NF ^f (%) [*]	X ²	P ^{**}
1	4(1.9)	64(31.1)	60(29.1)	30(14.6)	44(21.4)	4(1.9)	101.69	.000
2	32(15.8)	31(15.3)	96(47.5)	27(13.4)	16(7.9)	-----	99.63	.000
3	134(67.3)	20(10.1)	6(3.0)	36(18.1)	3(1.5)	-----	295.90	.000
4	36(18.1)	15(7.5)	48(24.1)	77(38.7)	8(4.0)	15(7.5)	103.80	.000
5	65(32.7)	37(18.6)	21(10.6)	38(19.1)	14(7.0)	24(12.1)	49.77	.000
6	46(22.9)	75(37.3)	47(23.4)	12(6.0)	21(10.4)	-----	61.07	.000
7	12(5.9)	27(13.4)	35(17.3)	81(40.1)	7(3.5)	40(19.8)	104.18	.000
8	76(37.4)	12(5.9)	10(4.9)	27(13.3)	9(4.4)	69(34.0)	139.59	.000
9	57(28.9)	51(25.9)	13(6.6)	29(14.7)	22(11.2)	25(12.7)	45.71	.000
10	16(8.0)	39(19.5)	18(9.0)	3(1.5)	117(58.5)	7(3.5)	275.44	.000
11	33(17.2)	17(8.9)	19(9.4)	21(10.9)	101(52.6)	2(1.0)	193.88	.000
12	10(5.1)	67(33.8)	62(31.3)	23(11.6)	19(9.6)	17(8.6)	93.27	.000
13	36(18.6)	37(19.1)	23(11.9)	65(33.5)	11(5.7)	22(11.3)	54.17	.000
14	19(9.7)	76(39.0)	24(12.3)	52(26.7)	24(12.3)	-----	61.23	.000
15	119(61.0)	4(2.1)	3(1.5)	71(35.4)	-----	-----	193.66	.000

^aThose who chose the A response to each question

^bThose who chose the B response to each question

^cThose who chose the C response to each question


^dThose who chose the D response to each question

^eThose who chose the E response to each question

^fThose who chose the F response to each question



^{*} Percentages based on the number of proper answers to each question

^{**} p<.05

the musical example was the preference of 31.1% of respondents, while 29.1% chose the combination of legato marks and normal accents(). The closest other choice was the use of sforzandos(sfz) under each note(21.4%).

The results of the survey's second articulation--notes receive full value(with a minimum of space between notes), without loud attacks--also pointed to significant preferences. The second notation, the word "legato" written over an unaugmented musical example, was chosen by 47.5% of performers. The next nearest response was the first notation, no added marks(15.8%).

Performers showed a definite preference for the use of staccato marks to notate the third articulation--notes shortened in value(each separated from the next), without loud attacks--with 67.3% choosing that notation. The use of the word "detached" over an unmarked example was the second choice with 18.1% of performer preference.

The use of the combined staccato mark and normal accent () was the preferred choice of 38.7% of performers for the fourth articulation--notes shortened in value(each separated from the next), with loud attacks. The next closest notation in popularity was a combined staccato mark and circumflex accent() , the choice of 24.1% of respondents.

A clear preference was also shown for the fifth articulation description--notes receive full value, with notes louder than normal within the prevailing dynamic(notes accented for the whole of their duration). The first

notational choice, a combination of normal accents with legato marks(\geq) was preferred by 32.7% of performers, with 19.1% opting for normal accents over a slur(\curvearrowright) and 18.6% choosing the usage of a forte sign(f) with no other marks.


The use of sforzando signs(sffz) was the preferred choice of 37.3% of those choosing notations for the survey's sixth articulation--notes shortened in value, receiving very loud attacks, with only slight diminuendos. The combination of normal accents with staccatos(>) was chosen by 23.4%, while circumflex accents were chosen by 22.9%.


For the seventh articulation--notes receive full value, with each note stressed or leaned upon(perhaps with each note receiving a slight crescendo)--40.1% of performers preferred a combination of legato marks with crescendo signs(>). The second most favorite notation for the articulation was a series of crescendo signs(19.8%), while the third choice was a series of piano marks, crescendo signs, and mezzo-forte signs($p \text{ < } mf$) used by 17.3% of the respondents.



Two notations were the preferences of performers for the eighth articulation--notes receive full value, with very loud attacks, with quick and large diminuendos. The written description "bell-tones" over the musical example along with forte-piano signs (fp) under each note were selected by 37.4% of performers. The combination of sforzando-piano marks under legato marks($\text{sf}p$) was chosen by 34% of the performers.



The ninth articulation--notes are slightly separated, receiving forceful attacks with slight decays-- also had two


notations receiving support. The written description "marcato" written over the musical example along with normal accents under each note was preferred by 29.9% of the performers. The second most popular notation was a combination of normal accents and staccato marks chosen by 25.9% of the performers.

A majority of performers expressed a similar notational preference for the 10th articulation--notes are shortened in value, with very loud attacks and quick diminuendos. Storzando-piano marks under staccato dots(*sfp*) were chosen by 58.5% of performers. The next most popular choice(19.5%) was for a combination of circumflex accents over each note and sforzato marks under each note().

The 11th articulation--notes receive slight or some separation, with each note stressed or leaned on(a very slight crescendo on each note)--also garnered a similar majority response. Most performers(52.6%) chose a series of crescendo marks(<) to notate the articulation. The combination of staccato and legato marks() was chosen by 17.2% of the performers.

The survey's 12th articulation--notes receive full value with no separation, receiving diaphragmatic stress, rather than articulated accents--had two notations receiving virtually the same amount of performer support. The combination of legato marks used over a slur() was chosen by 33.8% of performers, while the combination of normal accent marks used over a slur() was chosen by 31.3% of performers.

A combination of staccato marks over a slur() was the clear preference of performers for the 13th articulation-- notes receive some separation and diaphragmatic stress, rather than articulated accents--with 33.5% of responding performers selecting it. A combination of legato and staccato marks() was chosen by 19.1% of performers, while legato marks by themselves were chosen by 18.6% of performers.

Of all responding performers, 39.0% chose a combination of legato marks over a slur() for the 14th description-- notes are a flow of sound with the beginning of each note just barely articulated. The next closest preference(26.7%) was for the written description "legato" given over the musical example.

For the 15th articulation--notes are a flow of sound, with no breaks between them--a majority of performers(61.0%) chose a slur to notate the articulation. The written description "legatissimo" given under a slur was the chosen articulation of 35.4% of the performers.

Summary

A survey of 208 brass players was conducted to determine if performers displayed notational preferences for 15 articulations. Preferences were analyzed for overall trends. All articulation descriptions showed significant performer preferences for individual notations at the .05 probability level. Overall results showed that four articulation descriptions received a majority of player support for one notation, seven articulation descriptions received a clear plurality

of player support for one notation, and four descriptions had two notations sharing performer support. The hypothesis that brass performers will indicate no clear preferences on how individual brass articulations should be notated was rejected.

CHAPTER SIX

COMMON PRACTICE BASED ON RECORDED EXAMPLES

In modern performances of symphonic and band music, the final determination of how notated examples are to be played is made by a conductor. Conductors of a major performing ensemble (one whose performances are available on a major recording label) can have a large influence on how music of many eras is perceived. If these authorities demonstrate a common perception of how articulation notations are to be performed, it would be possible for composers to notate their music in an acceptable manner. It would then be possible for performers to learn the common perception, thus making rehearsals more efficient. To study the question of whether such a common perception exists, the following hypothesis was formulated: Major conductors will demonstrate a common practice of performing brass notations.

Methodology

As shown by this study's review of literature, composers of different historical periods often had different conceptions of how to notate articulations. To determine if conductors share similar methods of performing articulation notations, composers from 11 different musical periods were examined. Musical periods and composers studied include the late Baroque (J.S. Bach), Classical (Haydn), late Classical

(Beethoven), Romantic(Berlioz), Russian Romantic(Rimsky-Korsakov), early Post-romantic(Wagner), late Post-romantic (Mahler), American Romantic(Sousa), Impressionistic(Debussy), Neo-classic(Stravinsky), and Expressionistic(Berg).

An excerpt from one work of each composer was selected for study. The author analyzed each available recording in the music libraries of the University of Florida, the University of Maine at Orono, the Queens Borough Public Library in New York City, the author's private library, and other sources where available, to determine how each excerpt was articulated.

To analyze the articulation usage of conductors, 18 different articulations were identified by number. They were

1. Full value(barely separated), loud attacks, quick diminuendo.
2. Full value, without loud attack.
3. Note shortened, without loud attack.
4. Note shortened, with loud attack.
5. Note full value, accented for the whole of its duration.
6. Note shortened, very loud attack, slight diminuendo.
7. Full value, note stressed.
8. Full value, very loud attack, slight decay.
9. Slightly separated, forceful attack, slight decay.
10. Slightly separated, very loud attack, with quick diminuendo.
11. Slight separation, note stressed.
12. No separation, with diaphragmatic stress.

13. Separation, with diaphragmatic stress(not tongued or articulated).
14. Flow of sound with just a bare articulation("d").
15. One flow of sound.
16. Full value, loud attack, slight decay.
17. Fast as possible(but still full value).
18. Shortened note, with loud attack and quick decay.

After listening to each recorded excerpt, the author identified each brass note with a number indicating the articulation used(see Appendix C). In cases where instruments are playing unison rhythms, and where the players used similar articulations, only one number was assigned to the group. In some cases, it was impossible for the author to hear an individual articulation. In those cases, a question mark was used. It was possible that some notes, through an unclear recording or an incorrect analysis, were mismarked. It was thought, however, that most articulation analyses would be correct. For the purpose of this study, if over half of the recorded examples had few similarities in articulation performance, hypothesis three would be considered disproved.

Analyses of Recorded Musical Excerpts

J.S. Bach(1685-1750). Brandenburg Concerto No. 2(1721)

Bach is unquestionably the most famous of late Baroque composers. His compositions include works for chorus, organ, and instrumental ensembles. The six concertos dedicated to the Margrave of Brandenburg combine the three-movement form

of Italian concertos with rich German counterpoint. The second Brandenburg features a virtuoso trumpet part. This study analyzed measures 1-57 of the third movement in The Norton Scores, edited by Kamien(1968).

Eleven different recordings were used. The most prevalent notation in the excerpt was a series of diatonic sixteenth-notes(measures 4-6, 11-14, 17-20, 44-46, and 53-55). None of these passages showed a consensus of conductor/performer practice. In the first sixteenth-note passage, for instance, the selections conducted by Fehr, Goberman, Horenstein, and Faerber had notes shortened with a loud attack. Those conducted by Hamoncourt, Newman, Schwartz, and Karajan had notes shortened, but without a loud attack.

An even greater articulation disparity was displayed when two non-diatonic eighth-notes were played in succession. Whenever the figure occurred, either one, none, or both were accented, with some shortened and others held for their full value.

The notation which occurred with the second greatest frequency in the excerpt was that of an eighth-note followed by two sixteenths. The most popular method of performing the sixteenth-notes was to shorten them without loud attacks, as was performed by six conductors. The five other examples included vastly different articulations. There was no consensus on how to play the eighth-notes.

In summarizing the articulation usage of different conductors towards the music of Bach, no patterns have emerged.

The fact that there were no articulation marks in the passage may have accounted for some diversity in playing styles.

F.J. Haydn(1732-1809). Trumpet Concerto(ca. 1765)

Though Haydn composed for all types of musical groups, he is best known for his instrumental writing. He was a major force in the development of the symphony, and his compositions for string quartet surpass those of any other Classical composer. His trumpet concerto is still a standard trumpet solo piece. This study analyzed the solo trumpet part in measures 37-83 in the Carl Bowman piano reduction published by G. Schirmer, Inc.(1963).

Seven recordings were used for this analysis. Though there are accentual differences in how notes are initially struck, all conductors/performers agreed that half-notes and quarter-notes receive full value. One version(conducted by Redel) had almost all unslurred quarters and halves accented, where the Reinhardt and Bamberger versions had only half-notes accented. The remaining versions, conducted by Paillard, Heiller, Berinbaum, and Fiedler, utilized unaccented halves.

As a general rule, if eighths were connected by a slur they were played as one flow of sound, though Redel's version used just bare articulations("d"). There was not much agreement on the use of eighth-notes without slurs. Five of the conductors played the eighth-notes in measure 37

shortened without loud attacks, but Reinhardt had them all played full value, without loud attacks, and Berinbaum had the notes just barely articulated. There was less agreement on how to play slurred diatonic sixteenth-notes(measure 42). Paillard's rendition had all sixteenth-notes played in one sound, as did Fiedler's and Berinberger's. Berinberger and Redel, however, had each note barely articulated. Reinhardt gave each note full value, but accented with a loud attack and slight decay. Heillor actually shortened the slurred notes. Slurs over long notes, halves and quarters, were generally played as one flow of sound, though at one time or another in most examples, notes were either barely articulated or given breath accents.

As the volume increased in the musical selection, notes tended to become more accented and shorter. Measure 88 is a good example of this tendency, as six performances demonstrated slightly separated quarter-notes, with a forceful attack and a slight decay. The seventh example(Redel) gave the notes full value.

A summary of the analysis of Haydn's music shows some important similarities and differences in interpretations. In general, quarter-notes without slurs were shortened and, when played in forte, were accented, while half-notes were held full value. There was no consensus on playing short notes over slurs and in striking longer notes. For the most part, differences outweighed similarities. The interpretations may have been affected by Haydn's sparse use of articulation notations.

L. Beethoven(1770-1827). Symphony No. 5 in C Minor(1807)

Beethoven is often thought of as a transitional composer, whose work linked the Classical Period to the Romantic Period. His nine symphonies have had a major impact on music history. The Fifth Symphony in C Minor is an especially important work for brass players as, for the first time, trombones were used in a symphony. This study analyzed measures 1-33 in the fourth movement of the edition published in The Norton Scores, edited by Kamien(1968).

Ten examples of the Beethoven passage were analyzed, and very few trends emerged. In fact, for the first three notes of the movement there were eight different types of articulation. Bernstein and Krips accented the notes, but gave them full value. Szell gave them very loud attacks, but separated the notes. Solti stressed the entire note with some separation. Even in measure 3, where the brass have a series of eighth-notes followed by an eighth-rest, the length and attack of note differed greatly among conductors. Kleiber, for instance, had the notes given full value with very loud attacks and large decays, where Toscanini and Markevitch had a loud attack, but with notes shortened noticeably.

There seemed to be agreement among conductors on how dotted half-notes were played in a fortissimo dynamic(measure 4). All conductors except Solti had the note held full value, and all had the note attacked loudly, though there was some disagreement about the amount of decay. Playing successive

fortissimo quarter-notes with separation was common to all the recordings(measure 17 in the trombone part, ms. 18 and 19 in the trumpet and horn parts). They differed widely, however, on the type of accent and the length of separation used.

For dotted-eighth followed by sixteenth-note passages, there was agreement that dotted-eighths should be accented and shortened(measure 17 in the trumpet and horn parts). There was considerable disagreement about how the sixteenth should be articulated. There was also virtually no agreement on how dotted-eighths and sixteenths should be played when they were followed by quarter-notes(measures 13 and 15 in the trumpet and horn parts).

Summarizing the findings on the Beethoven excerpt, the common practice was that dotted-halves were held full value and, in dotted-eighth followed by sixteenth-note passages, the dotted-eighths were accented and shortened. There was very little agreement among conductors on how other passages should be articulated. Perhaps, as with the music of Bach and Haydn, the lack of articulation notations made it virtually impossible to attain standards of performance.

H. Berlioz(1803-1869). Fantastic Symphony(1830)

Berlioz was a true Romantic composer. He expanded the orchestra to include many instruments including the tuba. He was a master orchestrator, whose Treatise On Instrumentation

is still used. The Symphonie fantastique is a five-movement program work which includes an idée fixe, a musical theme which recurs throughout the symphony. This study analyzed the brass parts in measures 29-39 and measures 127-241 of the fifth movement in the Norton Critical Scores edition edited by Cone(1971)

Twelve recorded examples of the Berlioz work were analyzed, and few trends emerged. In measures 36-38 of the trombone part, there is a series of quarter-notes surrounded by quarter-note rests, where the rests fall on the beat and the notes come between the rests. For all conductors except Munch, these quarters were shortened and accented, though the accent varied from a very loud attack(Mitropoulos, Boulez, Davis, and Martinon), to a stressed note(Monteux). Similarly, in a series of dotted quarter-notes(measures 147-155 in the horns, trombones, and tuba), all conductors had the notes accented, except for the Boulez trombones. The type of accent varied, however, and the length of the note varied. Though four conductors had the figure receiving full value at measure 147, and three held it for full value at measure 206, when the figure occurred at measure 232, only Bernstein gave the notes full value.

The recordings gave many examples of dissimilar articulation usage. In the "Dies Irae" section, from measures 127-146 in the tuba part, there were at least nine separate articulations used. Rapid notes in measure 31 were either shortened, held for full value, stressed, played with just a "d"

articulation or with a very loud attack. The only significant pattern of articulation to appear was in measure 236, where there were triplet patterns in the horns and trumpet. Notes were shortened in all examples, though there was no pattern on how the notes were tongued.

To summarize the Berlioz findings, a series of one-beat notes were accented and a series of rapid notes were shortened when the tempo was fast at a forte or louder dynamic. No other patterns developed. It is interesting to note that in the solo tuba sections, measures 127-146, 163-175, and 187-204, where a normal accent sign is used, no pattern of performance emerged. There were few overall patterns.

R. Wagner(1813-1883). Overture to Die Meistersinger(1867)

Wagner represents the pinnacle of German Romantic opera composition. His use of the opera orchestra was unparalleled. Many of his operatic orchestral interludes are played as part of the standard orchestral repertoire. Wagner was particularly concerned with the use of brass instruments, as demonstrated by his design and use of Wagner tubas. This study analyzed the articulation usage of conductors in measures 40-88 of the Pro-Art Miniature Score edition(1946) of the "Overture" to the opera Die Meistersinger.

Thirteen recorded excerpts were used to examine the articulation performance practices related to Wagner's music. Some patterns of articulation usage did emerge. Even though Wagner gave the direction ben tenuto, unmarked quarter-notes

were shortened in most cases studied. This was true in measure 41 and other locations for all conductors except Ormandy, Walter(in the horn and tuba), and Szell(in the horn parts). Most conductors gave an accent to each of these notes, though approximately half of the excerpts had the notes receive forceful attacks with slight decays, while the other half had notes receive very loud attacks with quick diminuendos. Klemperer's version had the articulation constantly changing.

For unmarked half-notes(measure 47), all conductors, with the exception of Klemperer, had the notes receive full value with either loud attacks and quick decrescendos or loud attacks and slight decays. For the eighth followed by two sixteenth-note combination which occurred often(measures 40, 42, 44,48,50,52), all conductors agreed that the notes should be shortened, but there was considerable difference of opinion on the amount of accent the notes received.

When notes were played under a slur, as in measures 67-88, there was agreement that notes should be played full value; yet, there was considerable disagreement over whether the notes were to be one flow of sound barely articulated with "d" tongue, or given diaphragmatic stress. Unadorned eighth-note passages(measure 56 in the third and fourth horns) had observable patterns to their performance. In measures 73 and 74, the trombones and the tuba are given circumflex accents over half-notes. Most conductors had the measures played with notes receiving full value, loud attacks and slight decays.

Klemperer and Stokowski had the notes played with no accents. It is interesting to note that though no more accents appear after measure 74, half-notes continued to be played in the same manner until measure 79.

To summarize the findings on conductors' interpretations of Wagner notations, there was a tendency for unmarked quarter-notes to be shortened, with notes receiving some sort of accent. The eighth-and-two-sixteenth-note pattern was shortened, though no determination could be made on the volume of each attack. Unmarked succeeding half-notes received full value with some accent, as did half-notes under a circumflex accent. Slur marks were treated as phrase marks, with articulation confused. Series of eighth-notes also displayed no pattern. In the author's view, the Wagner excerpt did contain a significant number of articulation similarities.

N. Rimsky-Korsakov(1844-1908). Capriccio Español(1887)

Rimsky-Korsakov was the youngest member of the Russian Five, a group of amateur musicians(except for Balakirev) who brought nationalistic tendencies into Russian music. He was a master orchestrator, publishing the Principles of Orchestration in 1908. The Capriccio Español is a five-movement flashy composition which clearly displays the composer's considerable skills. This study analyzed the brass parts of the work's fifth movement, "Fandango Austriano," from the fifth measure of rehearsal letter "V" to the conclusion of the piece, in the Kalmus Orchestra Scores edition(1932).

This study utilized recorded examples of nine conductors. Most normally accented half-notes were treated as full-value notes, with loud attacks and slight decays(in six cases) or with quick decrescendos(in three cases). The trumpet and horn parts demonstrated this in the 7th, 9th, 11th, and 13th measure of rehearsal letter "V" to letter "W" in the horn part(except for Mehlich and Stokowski). With few variations (Ormandy and sometimes Mehlich), unaccented quarter-notes were shortened. When played fortissimo, as with the trombones at letter "W", the notes were likely to receive loud attacks, while at lower volumes(the coda) there was disagreement. Eighth-notes with staccato dots were generally shortened without loud attacks, except for Barenboim who had slightly separated notes with forceful attacks(the 6th, 8th, 10th, and 12th measures of "V" of the trumpet part).

Confusion reigned in the interpretation of rapid sections where there were different lengths of notes. Articulations such as those at letter "Z" varied from long sixteenth by Bernstein and Galliera trumpets to shortened sixteenths from Martinon and Prêtre. No triplet figure(from seven measures before "W" in the trumpet to letter "Y") received the same articulation.

To summarize the findings of the articulation analysis of conductors' interpretations of Rimsky-Korsakov, accented notes were given loud attacks and full value, while staccato marks over notes shorten the value of the notes without giving an accent. Unaccented notes tended to be shortened, though

there was disagreement on whether or not they received accents. There was no agreement on how other figures were played. Though the excerpt showed a consensus on many articulations, there was still considerable disagreement among conductors.

G. Mahler(1860-1911). Symphony No. 1 in D(1889)

Mahler was an Austrian composer who was renowned for his conducting abilities. Though he sometimes composed for an extremely large orchestra, he was unusually sensitive to individual tone colors of instruments. His fanfare in the last movement of the Symphony No. 1 is one of the most stirring in orchestral music. This study utilized the brass articulation usage in measures 316-422 of the last movement of the Universal Edition(1967).

Seven examples of the excerpt were used in this study, and virtually no pattern of common articulations was found. Any similarities which existed seemed to be only isolated examples. In measures 320 and 321, the trumpets have circumflex accents. Though there were differences in the loudness of attack and the actual separation between notes, there was agreement that the notes do receive separation. In measures 365-367, however, five conductors' performances gave the circumflex accent full value. Another example of inconsistency came with the use of staccato marks under circumflex accents (^). In measure 375 in the horns and trumpets, all seven examples demonstrated different methods of articulating the measure, but six(all except Solti) had the notes separated. In measures 388-390 and 392-395, however, three conductors indicated full value for notes.

Mahler used wedges for the horns and trumpets in measure 351. All versions displayed some separation of notes, though there was no consensus on the amount of separation or on how the notes should be tongued. In fact, the only notation which showed complete agreement of performance technique was in measure 335, where horns and trumpets have a piano whole-note. All examples were given full value with no accent. Even the playing of slurs showed a disparity of styles (measures 328-332, third and fourth trumpet), as articulations varied from one flow of sound to full value, but loud attacks (Haitink). To summarize, it was virtually impossible to find any trends in the performance of Mahler excerpts.

J.P. Sousa(1854-1932). The Stars and Stripes Forever(1897)

Sousa was a violinist who composed many varieties of American Romantic music, including musical comedies; yet, it was his marches that made him famous. The Stars and Stripes Forever is, perhaps, his most famous march and is recognized throughout the world. This study utilized the last strain (the last 56 measures) of the John Church Company edition(1951) of the march. This edition was used to analyze both the band and orchestra arrangements of the work. Though the key signatures differ in the arrangements, the articulation notations for the brass are virtually the same.

Eight examples of The Stars and Stripes Forever were utilized. The study of Sousa's work is somewhat unique in that he, himself, was a fine conductor who recorded many of his

own marches, providing future conductors with standard performances.

In The Stars and Stripes Forever, Sousa made much use of the circumflex accent with very little use of the normal accent (mostly used with slurs). He performed these attacks either greatly shortened with loud attacks (especially when the accent fell on a strong beat within a fortissimo dynamic), or he slightly separated the notes using forceful attacks and slight decays. All other conductors agreed to shorten the circumflex accented notes, but there was no agreement as to the amount of accent to use. This varied from no accent by Kline (in the cornet part, measures 2 and 6 of the excerpt), to a very loud attack by Ormandy (measures 10-12 in the cornet/trumpet part).

In the march's last 32 measures, where the trumpets and euphoniums play the famous last melody, the passage is notated as a series of slurs with accents occasionally added, and some notes (usually pick-up notes) left without slurs. Surprisingly, Sousa's own version provided no clear pattern as to how the excerpt should be articulated. In some instances, slurred notes without accents were treated as one flow of sound, in other instances they were given diaphragmatic stress, while one case (measure 12 of the phrase), a slurred note was accented with a loud attack. Notes with normal accents over (or under) a slur were also treated dissimilarly. In measures 2 and 4 of the excerpt, for instance, the accented notes were played full value with loud attacks

and slight decays, while in measure 5, the accented note was just given diaphragmatic stress. In measure 21 of the final melody, the accented note was treated as one flow of sound. Slurs without accents were either played as one flow of sound (nine measures from the end), or as barely articulated with a "D"(the fifth to third last measures of the piece).

With Sousa displaying inconsistencies, it was not surprising that few patterns of performance emerge in other conductors' work. There were some, however. In measures 1-2 and 4-6, there was a series of two slurred-eighth-notes followed by two staccato-eighth-notes, followed by two quarter-notes in a fortissimo dynamic. Virtually all examples accented the eighth-notes played on the beat, played the second slurred note as one flow of sound but shortened, and shortened the staccato eighth-notes without accents(except for Bashford). The quarter-notes were tongued loudly(or, in Ormandy's case, stressed) and shortened. Although the final 32 measures did not share any similarity in individual articulations, all examples shared the feeling of long and flowing musical lines.

To summarize the findings on the articulation of Sousa excerpts, his loud eighth-note passages were articulated similarly, and notes under circumflex accents were shortened. Other than the general character of the music, however, there were few interpretation similarities.

C. Debussy(1862-1918). Nocturnes(1899)

Debussy was the first great Impressionist composer. He used a large orchestra, but rarely used all instruments at once. Contrasting tone colors is a major element of Debussy's music. "Fêtes," the second movement of Nocturnes, adds a driving rhythm to the blend of tone colors. This study analyzed the brass parts from rehearsal number 10 to the first measure of rehearsal number 14 in the International Music Company edition(no date listed).

This study used 12 conductors' interpretations of the musical excerpt. As with most other studied works, very few common articulations have emerged. The one articulation shared in all 12 examples occurred in the trumpet part, 13 measures after rehearsal number 10. At a pianissimo dynamic level, dotted eighths are tied to sixteenths on both beats of the measure. All examples had the first note receiving full value, a loud attack, and a slight decay. For the second beat of the measure, eight examples had the same articulation, while four had the notes receive full value without accents. This rhythmic figure occurs once more in the fifth measure after rehearsal number 13, but with a forte dynamic. Here, all excerpts except three(Stokowski, Boulez, and Silvestri) had the first note receive a loud attack with a quick diminuendo. It followed, then, that the louder the dynamic for this figure, the more prominent the accent would be. .

There are a few Debussy notations that shared articulation characteristics. Unmarked eighth-notes in the trumpet part four measures after rehearsal 10 were all shortened, though the actual length of the notes and the loudness of the attacks varied greatly. Unmarked half-notes in the seventh measure after rehearsal number 13 in the trombones were all held full value with some degree of accent(except for the Stokowski example). The type of attack varied evenly between notes receiving loud attacks and quick decrescendos, and those with loud attacks and a slight decay. In the third measure before rehearsal 11 in the trumpet part, however, with a pianissimo dynamic, articulations varied evenly between loud attacks and soft attacks.

To summarize the Debussy findings, though few common articulation practices existed, dotted eighth-notes received full value, with the attack determined by the place of the location of the note in the measure and by the surrounding dynamic. In addition, a series of unmarked eighth-notes in Debussy's music had at least some separation. Finally, half-notes received full value and were attacked more strongly in louder dynamics than in softer ones.

I. Stravinsky(1882-1971). The Rite of Spring(1913)

Stravinsky is generally thought to be one of the finest Neo-classic composers. The Rite of Spring was the last of three that Stravinsky composed for Sergei Diaghilev and the Russian Ballet. It featured rhythmically oriented writing

combined with new chordal combinations. Its premiere made an immediate impact on the music world. The "Danse Sacre" is the concluding section of the work. This study utilized the brass parts from rehearsal numbers 142-157 in the Boosey & Hawkes edition(1967).

Seven recorded excerpts were used in the study. A number of common practices were discovered. Stravinsky used wedges in the French horn parts at the fifth measure after rehearsal number 142, after rehearsal number 144, after rehearsal number 145, and after rehearsal number 147. All conductors had these notes shortened, and most gave them no accent(except for Boulez). Notes with combined sforzando marks and staccato marks were consistently played short, but the amount of attack varied. Normal accents over sixteenth-notes along with the written "marcato" received similar articulations in five cases, where the notes were shortened (either with decay or without), and given loud attacks. Bernstein had the notes separated but receiving stress, and Ansermet had the notes receiving no accents.

A surprising similarity occurred at rehearsal number 149 in the first four horn parts. Stravinsky wrote a series of two thirty-second-notes with staccato marks, with a tie connecting three series of the figure. Instead of hearing six separate notes, all examples treated each series of two notes as one, thus creating the impression of sixteenth-notes being played, not thirty-seconds.

Though the above similarities did exist, there were discrepancies in overall interpretations. Accented eighth-notes

(the second measure after rehearsal number 145, for one) had many different articulations. Isolated eighth-notes were treated differently throughout. Notes without accents were emphasized in some renditions and not in others.

To summarize the findings in the Stravinsky excerpt, there was a considerable number of articulation similarities. Wedges shortened a note without a hard attack. The word "marcato" along with normal accents shortened the notes and had them receiving loud attacks. Finally, two tied-thirty-second-notes with staccato marks were treated as sixteenth notes. There were no common practices with unmarked or isolated notes.

A. Berg(1885-1935). Wozzeck(1921)

Berg, a student of Schoenberg, was perhaps the greatest Expressionist composer. He has contributed greatly to the development of the string quartet. Wozzeck was Berg's first opera. It is in an overall A B A form, with each act presented in five scenes. In Act I, between the second and third scenes, there is a march interlude, where Marie admires the army band and the drum major. This study analyzed the brass parts from measure numbers 328-363 in the Universal Edition (1955).

Six recorded excerpts of the "Soldiers' March" were studied. The largest similarity of articulation usage occurred whenever normal accent marks were used with quarter

notes. All conductors had the notes slightly separated. There was an even split between those conductors who used a forceful attack with a slight decay and those who used a very loud attack with a quick diminuendo. When the volume increased to fortissimo, as in measure 362 in the trombone and tuba parts, some examples showed a break between notes, while some still remained full value. Eighth-notes accented in measure 345 in the trumpet part within a fortissimo dynamic were all shortened, though by different amounts and with different attacks. Summarizing the Berg excerpt, the only similarity was that conductors shortened accented quarter-notes.

Summary

This study analyzed musical excerpts of 11 composers of 11 different musical periods in an effort to discover if conductors viewed articulation notations in similar manners (see Table 11). In the works of Bach, Mahler, and Berg, virtually no similarities of articulation were found. Though the works of Haydn, Beethoven, Berlioz, Rimsky-Korsakov, Sousa, and Debussy showed minor similarities in the way each individual work was performed, there were no major similarities which applied to all works. Only in the Wagner and Stravinsky excerpts did articulation similarities outweigh differences. Even in the works of these composers, important differences emerged. As over half the excerpts failed to demonstrate a common practice of performing brass articulations, hypothesis three was rejected.

Table 11

Observed Similarities in Articulation Usage

Composer	Similarities
Bach	No similarities.
Beethoven	Dotted-halves held full value. Dotted eighths shortened.
Berg	No similarities.
Berlioz	Fast, loud, unmarked one-beat notes are accented(though not necessarily shortened). A series of notes held less than a beat should be shortened.
Debussy	Dotted-eighths receive full value. Unmarked eighths are shortened. Half-notes receive full value.
Haydn	Unmarked quarter-notes are shortened. Unmarked half-notes are given full value.
Mahler	No similarities.
Rimsky-Korsakov	An accented note receives a loud attack with full value. Staccato marks shorten notes without an accent. Unmarked notes tend to be shortened.
Sousa	Eighth-notes falling on strong beats are accented. Eighth-notes not falling on strong beats are shortened. Circumflex accents shorten the note.
Stravinsky	Wedges shorten notes without accents "Marcato" shortens a note with a loud attack. Two tied-thirty-second-notes with staccato marks are treated as sixteenth-notes.
Wagner	Unmarked quarter-notes are shortened and receive loud attacks. Eighth-and-two-sixteenth-note pattern is shortened.

(table continues)

Table 11--continued.

Composer	Similarities
Wagner	Series of unmarked half-notes receive loud attacks and full value. Circumflex half-notes receive loud attacks and full value.

CHAPTER SEVEN PROPOSED GUIDE TO BRASS ARTICULATION

After looking at brass articulation notation usage from an historical, a composer, a performer, and a conductor standpoint, it became clear that there were no consistent standards of how brass articulations were to be notated. Though it was possible to determine how 17th and 18th century works were to be articulated, standard articulation practices from the Romantic Period of music to the present were clouded. Composers showed no clear preferences as to how articulations should be notated. Performers did show preferences as to how most articulations should be notated, but a majority of performers indicated a preference for just three articulation notations. Finally, conductors showed no preferences on how notations should be articulated.

No common musical language was found to transmit composer articulation intentions to performers. If these intentions are important for the proper performance of a work, the only way at present for a composer to be sure his or her intentions are carried out is to write out verbal articulation instructions on each note. This practice would make it almost impossible for performers to effectively sight-read music and might create more confusion than it prevents.

A standardized musical written language for articulations is clearly needed. By synthesizing the common articulation practices of composers, performers, and conductors, this study attempted to propose such a language.























Methodology

In order to prepare a proposed list of standardized articulation notations, results from this study's composer survey, performer survey, and the analysis of conductor articulations were used. For each articulation description in the performer and composer surveys, composer responses to the descriptions were listed and counted. A table was assembled showing the number of times each notation was used to define each description(see Table 12). The table used articulation description numbers from the performer survey. Those notations used fewer than three times to define an articulation were dropped from the table. As this section's purpose is to develop a musical language for articulations, rather than a verbal one, those notations where composers used verbal descriptions for articulations were also discarded.

The results of the performer survey were reviewed again. Results were rounded-off to the nearest percent and the top two responses for each description were listed, except for description numbers 8 and 9, where the most popular preferences were eliminated because verbal descriptions were used, and numbers 3, 14, and 15, where the second most popular notations were eliminated for the same reason(see Table 13). In

Table 12

Composer Articulation Usage In Composer or
Performer Survey-Forms
























Description	Notation and Occurrences ^a
1	 20, fp 8, <i>sffz</i> 5
2	No notation 15, — 13
3	• 31,  7
4	 17,  5,  4
5	 9,  5
6	 10,  6,  6
7	— 7
8	<i>sfp</i> 7, <i>sffz</i> 5, v 3
9	 6,  5, <i>sffz</i> 4
10	<i>sfp</i> 10,  4,  3, <i>sffz</i> 3
11	 6
12	 15,  5
13	 8,  5
14	 12,  6
15	 30

Note. Numbers represent the number of composers who used each indicated notation to describe the indicated articulation description in either composer or performer survey-forms.

^aResponses of fewer than three were dropped from the table, as were verbal responses.

Table 13

Performer Articulation Preferences in Percentages

Description	Notation and Percentage ^a
1	fp 31%,  29%
2	 48%, No notation 16%
3	 67%
4	 39%,  24%
5	 33%,  19%
6	<i>sffz</i> 37%,  23%,  23% ^b
7	 40%,  20%
8	<i>sfp</i> 35%, <i>sfz</i> 13%
9	 26%,  15%
10	<i>sfp</i> 59%,  20%
11	 53%,  17%
12	 34%,  31%
13	 39%,  19%
14	 39%,  12%
15	 61% ^c

Note. Articulation notations included in the table are the two most popular notations used to define each articulation description in the study's performer survey. Verbal descriptions were dropped.

^aPercentage of preferences for each individual notation for each articulation description.

^bThree notations are listed, as two shared 23%.

^cOnly one notation met criteria.

description number 6, where the second and third most popular choices had virtually the same amount of support, three responses were listed.

The performer list and the composer list were compared. If no clear description emerged for a specific notation, actual performance trends discovered in the analysis of conductor articulation preferences(see Table 11) were used.

Proposed Standardized Articulation Notation

After studying the common practices in articulation usage of composers(Table 12), performers(Table 13), and conductors (Table 11), this study proposed that the following notations receive the designated articulations.



No notation. Notes are slightly separated, with a forceful (but not overpowering) attack, with each note's sound decaying slightly.



Staccato marks. Notes are noticeably shortened, without receiving loud attacks.



Normal accents. Notes receive full value, with an attack which is slightly louder than normal (no notation), with each sound slightly decaying.



Legato marks. Notes receive full value, without accents, with very little decay on each note.



Circumflex accents. Each note is noticeably shortened, receiving a louder than normal accent, and a quick decay.



Forte-pianos. Notes are held for their full value, with each note receiving a louder than normal attack and a very rapid decay.



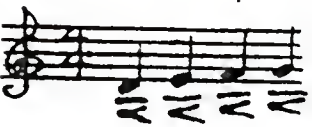
Staccato marks and normal accents. Each note is noticeably shortened, receiving a louder than normal accent, ending abruptly without a decay.



Legato marks with normal accents. Notes are held full value, with each note louder than normal within the prevailing dynamic, accented for the whole of its duration.



Sforzandos. Notes are noticeably shortened in value, with each note receiving a very loud attack, but only a slight decay.



Legato marks with crescendo marks. Notes receive full value, with each note stressed, each receiving a very slight crescendo.



Legato marks with sforzando-pianos. Notes receive full value, with very loud attacks, with quick and large diminuendos.



Staccato marks with sforzando-pianos. Notes are slightly separated, with each note receiving a very loud attack and a quick and large decay.



Legato and staccato marks. Notes receive slight separation, with each note stressed with a very slight crescendo.



Normal accents with slur. Notes receive full value, with no separation, with each note receiving diaphragmatic stress rather than articulated accents.



Staccato marks with a slur. Notes receive slight separation and are started with diaphragmatic stress rather than an articulated accent.



Legato marks with a slur. Notes are a flow of sound with the beginning of each note just barely articulated.



Slur. Notes are one flow of sound, with no breaks between them.

General tendencies:

1. When an unmarked note is followed by a rest, the note receives full value.
2. In a series of unmarked notes, where the intervals between the notes are leaps rather than steps, notes are played shorter than their normal length.

Rationale Behind Proposed Guide

In proposing an articulation guide, the author attempted to match the notational preferences of composers and performers to find a usage common to both. For six notations, this proved to be no problem.

A large majority of composers used the staccato mark to shorten a note's value, without giving the note a loud attack. A large majority of performers (67%) preferred to use the staccato mark for the above articulation, making the proposed definition for said mark an obvious selection.

The staccato mark with a normal accent was used by a plurality of composers to denote a note shortened in value with a loud attack. The notation was also preferred for that articulation description by a plurality of performers (39%). This, once again, made the proposed definition for that notation an easy selection.

A majority of composers who used the legato mark along with a normal accent defined the notation as having notes receive full value, with notes louder than normal within the prevailing dynamic. A plurality of performers(33%) also chose the normal accent with a legato mark to describe that articulation. For this notation, as well, the articulation definition was obvious.

Virtually all composers who used the staccato mark with a sforzando sign intended the notation to be understood as a sign to shorten notes' value, while indicating very loud attacks and quick diminuendos. The majority of performers (59%) matched that notation with the same definition, making the proposed definition for the staccato mark along with a sforzando sign another obvious choice.

The composers' preferred choice of articulation definition for staccato marks along with a slur was that notes receive some separation and diaphragmatic stress, rather than articulated accents. A plurality of performers(34%) chose the same notation for that definition. Though performers and composers were not as overwhelmingly in support of the proposed definition as they were with other examples, it seemed to be the best choice.

The final articulation notation which proved to be an obvious selection for the proposed list was the slur. Virtually all composers used this notation along with notes which are one flow of sound, with no breaks between them. A majority of performers(61%) also chose this notation for the articulation description.

Though a plurality of brass performers(37%) preferred the written description "bell-tones" along with the use of forte-pianos for the articulation "notes receive full value, with very loud attacks, with quick and large diminuendos," the notation was not used for the proposed guide, as the purpose of the guide was to provide a musical shorthand for articulations. Instead, the second most popular notation for this description(35%) was used, a legato mark along with a sforzando-piano sign. This latter notation was the first choice of composers for the articulation description.

The forte-piano mark was the notation chosen by a plurality of performers(31%) for the description that notes receive full value(with notes barely separated from the next), with loud attacks and quick decrescendos. It was the second most popular choice of composers for that definition and was chosen for inclusion in the proposed guide. Similarly, the legato mark was the preferred notation of performers (48%) for "notes receive full value(with a minimum of space between notes), without loud attacks," and was the second most popular choice for that articulation definition with composers. The notation and definition, therefore, were included in the proposed guide.

The sforzando mark was the preferred notation of performers(37%) for the definition that notes are shortened in value, receiving very loud attacks, with only slight diminuendos, but was not a popular choice with composers. The performers' second choice, however, a normal accent with a

staccato mark(which was the composer's first choice) had also been chosen to represent notes shortened in value(each separated from the next), with loud attacks. The performers' first choice of the sforzando was therefore chosen as the proposed definition.

The only notation composers used with any consistency to notate the articulation that notes receive full value, with each note stressed or leaned upon(perhaps with each note receiving a slight crescendo), was the legato mark. That notation had previously been assigned to another description. A large plurality of performers(40%) used a combination of the legato mark with a crescendo mark to notate the stated description, and it was chosen as the proposed notation for that description.

The notational sign preferred by a majority of performers was a crescendo mark for the articulation description notes receive slight or some separation, with each note stressed or leaned on(a very slight crescendo on each note). A crescendo mark, in itself, is a notation which has a clear non-articulation definition. The purpose of this study was to create clear definitions for notations, not to obfuscate definitions already in use. The notation of a legato mark combined with a staccato mark, the preferred notation of composers for this particular description, was chosen as the proposed notation for this description.

Choosing the proposed definition for the notation of legato marks combined with a slur was a difficult task in

that it was the preferred notation by composers and performers for two articulation descriptions: a) notes receive full value with no separation, receiving diaphragmatic stress, rather than articulated accents; and b) notes are a flow of sound with the beginning of each note just barely articulated. The combination notation of normal accents and a slur was chosen as the proposed notation for the former description. because it was almost as popular with performers as the legato-slur combination(34% to 31%). The second choice for the latter definition(staccato marks with a slur) received only 12% of performer preference. The legato-slur combination was chosen as the proposed notation for the articulation description that notes are a flow of sound with the beginning of each note barely articulated.

Although the circumflex accent is widely used, it did not gather support as a favored notation for any of the articulation descriptions included in the performer and composer surveys. When composers used the circumflex accent, there was almost equal support for three definitions: 1) notes shortened in value(each separated from the next), with loud attacks; 2) notes shortened in value, with very loud attacks and quick diminuendos; and 3) notes shortened in value, receiving very loud attacks with only slight diminuendos. Though performers rarely selected this notation, the third definition was the one which gathered the most support(23%). In this study's analysis of conductor articulation usage, the Wagner excerpt showed indications that conductors

articulated half-notes with circumflex accents as notes with loud attacks and full value; but in excerpts of Sousa, circumflex accents shortened notes. The proposed definition for the circumflex accent in this guide had notes shortened, receiving a louder than normal accent and a quick decay. This definition is different from the one which applied to the combined staccato marks and normal accents in that a note with a circumflex accent decays, where the staccato mark-normal accented note ends abruptly. The proposed definition took performer, composer, and conductor views and synthesized them into what the author felt was the mark's essence.

While most written musical notes have no added articulation notations, performers did not prefer unnotated examples for any of the survey's articulation descriptions. Composers showed a small plurality in favor of unnotated articulations for the description "notes receive full value (with a minimum of space between notes), without loud attacks." In trying to discover how unadorned notations should be performed, trends uncovered in conductors' performances in excerpts were studied. In the works of Haydn, unmarked quarter-notes were shortened. Unmarked dotted-halves were held full value in the music of Beethoven, but unmarked dotted-eighths were shortened. In Berlioz examples, fast and loud unarticulated one-beat notes were accented and often shortened. In Wagner excerpts, unmarked quarter-notes were shortened and received a loud attack, notes shorter than a quarter-note were shortened (but without a loud attack), and unmarked half-notes received loud attacks but full value. In Debussy,

unmarked dotted-eighths and half-notes received full value, but eighths were shortened. There were no patterns in the works of other composers.

Even in common practice, much confusion was found on how an unmarked note was to be performed. Notes unaided by articulation signs should form the nucleus of the notational system. An unnotated articulation should therefore represent the most natural method of articulating a brass instrument.

When performing a series of notes, a brass player holds the tongue against the top teeth or against the palate of the mouth, allowing air pressure to build behind the tongue. Moving the tongue down allows built-up air to escape in a rush. This rush of air forces the lips to vibrate, thus creating a tone. The initial burst of air is usually more violent than the steady stream of air which follows it, creating a slight accent which then slightly decays. If the tongue is replaced in the original position, a slight separation in the air stream occurs, forcing a slight break in the sound. This natural tonguing process should form the basis of brass articulation notation. The proposed definition of no added notation, therefore, was that notes are slightly separated, with a forceful (but not overpowering) attack, with each note's sound decaying slightly.

The proposed general tendencies were supported mainly by this study's analysis of conductors' recorded works. Virtually all notes with a value of a beat or more followed by a rest were given full value. Most notes under a beat in

value were also given full value, but there were exceptions. To avoid confusion, it is this study's recommendation that composers notate those cases where a note followed by a rest should be shortened, allowing performers to assume that no added notations in these cases indicates full value.

The second tendency derives from the historical imperative stated in 1795 by Altenburg(Enrico, 1979) and by a study of conductor musical excerpts. In accordance with the unmarked notes policy discussed earlier, natural playing tendencies should determine which notes are to be unencumbered by articulation notations. It is a natural tendency of brass players to take a brief pause between notes of wide intervals, in order to allow themselves time to adjust their embouchures.

Summary

In order to compose a proposed guide for standardized brass articulations, notational preferences of composers and performers were studied, as well as common practices demonstrated by important conductors. A series of 17 separate articulation notations was selected and defined in accordance with this study's findings. If these proposed brass articulation notations are met with popular acceptance by composers and performers, there should be far fewer misunderstandings on how music is to be performed.

CHAPTER EIGHT SUMMARY, DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

Summary

Restatement of Problem and Purpose

The first articulation marks were indications to violinists on how to use the bow while playing certain passages (Apel, 1982). Composers and performers of brass music have used the signs to aid in musical expression in the performance of music. The problem facing the musical field was that confusion existed in how composers and performers of brass music interpreted these articulation notation signs. Nowhere, prior to this study, was there one guide which advised composers on how best to obtain desired articulation effects, while, at the same time, advised performers on the correct method for interpreting composer articulation notational techniques. The purpose of this study, therefore, was to develop and propose such an articulation guide to be used by contemporary composers and performers of brass music.

Restatement of Research Question and Hypotheses

In order to facilitate the development of an articulation guide to be used by contemporary composers and performers of brass music, the following research question and three hypotheses were formulated. The research question was what brass articulations have been used since the development of the

first articulation notation? The three hypotheses were

1. Contemporary composers will demonstrate different conceptions of how various brass articulations should be notated.

2. Brass performers will indicate no clear preferences on how individual brass articulations should be notated.

3. Major conductors will demonstrate a common practice of performing brass articulation notations.

Restatement of Methodology

To examine the study's research question, articulation practices from the 17th century to the modern day were examined. Eras and musical categories researched included the Baroque Period, the Classical Period, the Romantic Period, 20th-century traditional music, modern or avant-garde music, and jazz. A combination of primary and pertinent secondary source material was used for the investigation.

To test hypothesis one, a composer survey was formulated which asked composers to notate 15 separate articulation descriptions. The survey was sent to 72 American brass composers suggested by members of the graduate music faculty of the University of Florida. Twenty-eight composers completed the survey-form, while four others, though not completing the form, did offer thoughtful responses. Those 40 composers who did not respond to the survey-form were sent a performer survey-form, with instructions that they could feel free to change written notations to fit their conceptions as to how

articulations should be notated. Fourteen composers completed the performer survey-form. Responses from the two forms were tabulated to determine if composers shared notational preferences.

A performer survey was formulated to test hypothesis two. Tabulated results from this study's composer survey were used to provide performers with notational alternatives to represent 15 articulation descriptions. The performer survey was administered to 280 of those attending the 1985 New York Conference for Brass Scholarships. Two hundred-eight performers correctly completed the survey-form. Results from the survey were tabulated. A chi-square analysis was performed to determine if brass performer notational preferences were significantly different at the .05 probability level.

To test hypothesis three, various recorded musical excerpts from 11 different musical periods were examined for performance trends. Musical periods and composers studied included the late Baroque(J.S. Bach), Classical(Haydn), late Classical(Beethoven), Romantic(Berlioz), Russian Romantic(Rimsky-Korsakov), early Post-romantic(Wagner), late Post-romantic(Mahler), American Romantic(Sousa), Impressionistic(Debussy), Neo-classic(Stravinsky), and Expressionistic(Berg). To analyze the articulation usage of conductors, 18 different articulations were identified by number. After listening to each recorded excerpt, the author identified each brass note with a number indicating the articulation used. Passages were then examined to reveal similarities and differences of performance practice.

Findings

Research question

Restatement of the question. What brass articulations have been used since the development of the first articulation notation?

Response. Clear indications on how to tongue Baroque music were indicated by Bendinelli(1975) and Fantini(1975). The treatises of Quantz(1966), Mozart(1951), and Altenburg(Enrico, 1979) helped modern performers understand articulation notations in Classical Period music. It was in the music of the Romantic Period where confusion about proper performance technique first occurred. Confusion continued into the 20th century. The Ghent Conference of 1974 found it impossible to agree on how modern or avant-garde articulations should be notated(Sabbe, 1975). In jazz writing, most authorities agreed on the definition of jazz articulation notations.

Hypothesis one

Restatement of the hypothesis. Contemporary composers will demonstrate different conceptions of how various brass articulations should be notated.

Criterion for rejection of the hypothesis. If 75% of the composers who filled out surveys agreed on a specific notation for a particular articulation the hypothesis would be disproved.

Results. A consensus of composers was reached on only one of the 15 articulation descriptions(the slur). Hypothesis one, therefore, was not rejected.

Hypothesis two

Restatement of hypothesis. Brass performers will indicate no clear preferences on how individual brass articulations should be notated.

Criterion for rejection of the hypothesis. A chi-square analysis was performed to determine if notational preferences of performers were significantly different at the .05 probability level. Findings indicating significantly different preferences would be cause to reject the hypothesis.

Results. All 15 articulation descriptions showed significant performer preferences for individual notations at the .05 probability level. Hypothesis two was rejected.

Hypothesis three

Restatement of the hypothesis. Major conductors will demonstrate a common practice of performing brass notations.

Criterion for rejection of the hypothesis. If over half of the recorded excerpts studied had few or no similarities, hypothesis three would be considered disproved.

Results. Only in 2 of the 11 excerpts studied(Wagner and Stravinsky) did articulation similarities outweigh differences. As over half of the excerpts failed to demonstrate a common practice of performing brass articulations, hypothesis three was rejected.

Discussion

This study does not attempt to dictate to performers and conductors the only proper method of articulating musical passages. Apel(1982), Enrico(1979), and Collins(1969) gave indications of what the common practice of performing articulations was in the Baroque era. L. Mozart(1951), Quantz (1966), Altenburg(Enrico, 1979), and Landon(1939), among others, gave very clear directions on how music of the Classical era was generally performed. Other works were used to chronicle articulation usage from the Romantic Period to the modern day. Even if these articulation indications were to be followed exactly, there would be little chance that the music played today would sound at all like the original performances. Modern brass instruments are far different from the ones in use during the Baroque and Classical eras. It is safe to assume that if modern players were to play authentic period instruments the sound would still not be authentic, as players today have "modern ears." There is no way of knowing what sound Baroque and Classical musicians found pleasing. Today's modern concert halls present far different conditions than those of 18th-century salons.

Despite the apparent impossibilities involved in producing an "authentic" performance, it is still important to know the original standards. Composers are products of their times. If modern composers wish to learn from greats

of the past, the more they learn of the conditions of each period, the easier it will be to apply the findings from that period to the modern day. Whatever modern-day performers decide regarding how a piece of music is to be articulated, knowledge of past practices will allow a performance which is correct in the spirit of a composer's intentions.

As with this study's historical review, the section dealing with the brass articulation notation usage of contemporary American composers does not attempt to dictate a set of imperatives to brass performers. It is recognized that playing conditions alter the ultimate effect produced by some articulations. A note given an abrupt ending in an acoustically dry room would sound completely different in a room with much reverberation. The instrumentation used in a performance might alter the ultimate effect of an articulation. Where a trumpet accent may be balanced perfectly against an orchestra of 90 strings, against 20 strings the effect might be overpowering. It is also recognized that different performer interpretations often enhance a work. It is certainly possible that a combination of composer intentions and performer preferences can produce a quality of music which exceeds the original conception of the composer.

This study, however, does not advocate complete performer anarchy. Although composers have very few standard articulation definitions, each composer who uses articulation notations has definite thoughts on how the music should be performed. This study provides at least some of the

articulation notation intentions of 46 contemporary American composers(see Appendix D). Although performers are free to interpret these notations differently than composers originally intended them, performers should be aware of what they are changing and have a good reason for doing so.

Musical notation is a form of communication. If composers use articulations to mean one thing yet performers think another, there is no communication. This study's composer survey showed that composers do not notate articulations uniformly while the performer survey did indicate that performers had definite preferences for which notations described particular articulation descriptions. It would be unreasonable for composers to assume that performers should learn a "proper" way to perform notations, when there is no one agreed upon method. For communication between composer and performer to occur, composers should make an effort to notate their articulations in a language performers understand.

This study next investigated the possibility that a common practice of articulating brass articulation notations already exists. The brass articulation usage of 92 recorded musical excerpts of 11 composers of 11 different musical eras was analyzed. It was hoped that performance trends would develop. As opposed to the performer survey, which tested how performers thought articulations should be notated, this analysis revealed how conductors actually had articulations performed. If overall trends had developed, it would have been a simple matter to report the results. Composers would

have been able to use the knowledge to assure that their use of articulation notations would produce proper articulations. Performers who learned these results would have been much more efficient players in rehearsal and much more precise in performances. It is unfortunate that no overall trends emerged.

The final section of this study was a proposed guide for brass articulation notations. Findings of earlier sections of the study were synthesized and rearranged to help form the proposed guide. It is understood that there will be disagreements concerning the guide's 17 notations and definitions. Yet if it is possible for jazz artists to agree on an articulation system, and for the most part they do, it seems reasonable to assume that eventually it will be possible for most brass musicians who play from standard notation to agree on a system. It is the author's belief that this study's guide is a major contribution towards that goal.

Conclusions and Findings

This study came to the following conclusions and findings:

1. Today's performers are more knowledgeable about the correct manner to perform articulations in the music of the 17th and 18th centuries than in music of the 19th and 20th centuries.
2. For only one out of 15 articulation descriptions, the slur, contemporary American composers demonstrated

different conceptions of how brass articulations should be notated.

3. Brass performers show clear preferences on how individual brass notations should be notated.

4. Conductors do not demonstrate a common practice of performing brass articulation notations.

5. If composers and performers agree on this survey's 17 proposed articulation notations, there will be fewer misunderstandings on how music is to be performed.

Recommendations

This study makes the following recommendations to further the cause of the clear use of articulation notations:

1. An investigator should tape-record and examine the actual playing of individual musicians. This would determine if brass players perform articulations in the manner they indicated on this study's performer survey.

2. This study's performer survey should be administered to brass players throughout the United States and the world. This would help determine whether results from this study's survey were only regional in nature.

3. The brass articulation usage of brass composers who were either not included in the composer survey or chose not to participate in the survey should be investigated.

4. This study's composer survey-form was formulated to fulfill a two-fold purpose--1) to determine what notations

composers used to indicate articulations; and 2) to later construct a composer survey based on the information gathered. A composer survey-form should be formulated to allow composers to give their own definitions for articulation notations.

5. A similar study should be attempted for woodwind articulation notations. If the 17 brass articulation notations proposed in this study could be adopted by woodwinds, composing for wind instruments would be greatly simplified.

6. A great educational effort is needed if the 17 proposed articulation notations are to be widely accepted. It is recommended that these proposed notations be presented in workshops and journals to brass performers, composers, and educators.

APPENDIX A
COMPOSER BRASS ARTICULATION SURVEY

Name _____

BRASS ARTICULATION NOTATION SURVEY

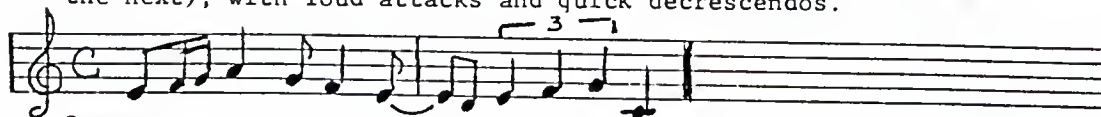
For each of the following examples, please supply(write in) the musical brass articulation notation that best exemplifies the written description. For example, you might notate measures in the following manner:



Feel free to use any articulation marking or dynamic marking (ie. *sfz*) that you feel is necessary. A space is provided to rewrite the example if note values need to be changed. Please add comments wherever you believe they may be helpful. Assume a dynamic level of *mf* and a tempo of ♩=88 throughout.

ARTICULATION DESCRIPTIONS

1. Notes receive full value(with each note barely separated from the next), with loud attacks and quick decrescendos.



Comments:

2. Notes receive full value(with a minimum of space between notes), without loud attacks.



Comments:

3. Notes shortened in value(each separated from the next), without loud attacks.



Comments:

4. Notes shortened in value(each separated from the next), with loud attacks.



Comments:

(continued next page)

BRASS ARTICULATION NOTATION SURVEY--p. 2

5. Notes receive full value, with notes louder than normal within the prevailing dynamic (notes accented for the whole of their duration).



Comments:

6. Notes shortened in value, receiving very loud attacks, with only slight diminuendos.



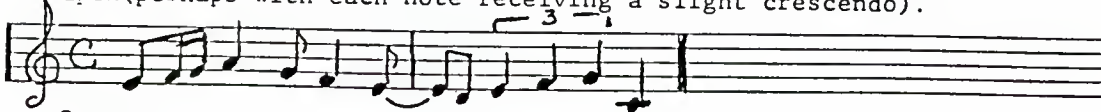
Comments:

7. Notes receive full value, with very loud attacks, with quick and large diminuendos.



Comments:

8. Notes receive full value, with each note stressed or leaned upon (perhaps with each note receiving a slight crescendo).



Comments:

9. Notes are slightly separated, receiving forceful attacks with slight decays.



Comments:

10. Notes are shortened in value, with very loud attacks and quick diminuendos.

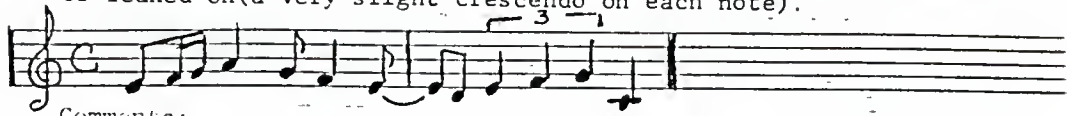


Comments:

(continued next page)

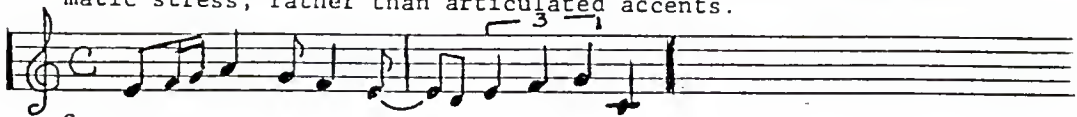
BRASS ARTICULATION NOTATION SURVEY--p. 3

11. Notes receive slight or some separation, with each note stressed or leaned on (a very slight crescendo on each note).



Comments:

12. Notes receive full value with no separation, receiving diaphragmatic stress, rather than articulated accents.



Comments:

13. Notes receive some separation and diaphragmatic stress, rather than articulated accents.



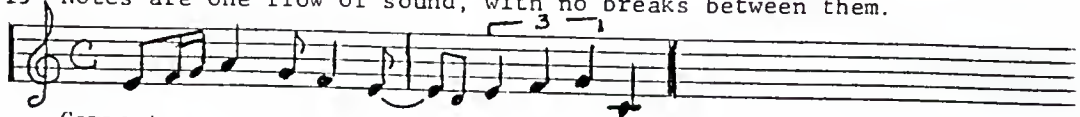
Comments:

14. Notes are a flow of sound with the beginning of each note just barely articulated.



Comments:

15. Notes are one flow of sound, with no breaks between them.



Comments:

Please state any overall comments you might have.

May I quote your responses in my dissertation or in related publications? Yes _____ No _____

APPENDIX B

PERFORMER BRASS ARTICULATION SURVEY

BRASS ARTICULATION NOTATION SURVEY

PLEASE COMPLETE THE FOLLOWING INFORMATION

Major Instrument _____ Your Age _____

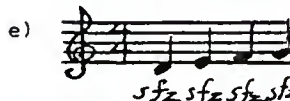
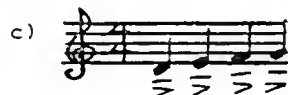
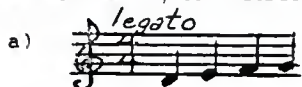
Please check the category which you feel best describes you as a brass musician.

High School Student _____ College Student _____ Adult Amateur _____

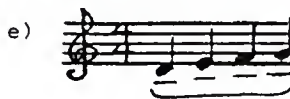
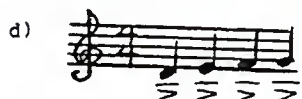
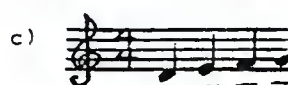
Professional _____ Other (Please Explain) _____

The purpose of this survey is to determine whether brass players view articulation notations with uniformity. For each of the following items, please CIRCLE the musical notation that BEST exemplifies each written description of an articulation. Assume that the dynamic marking for each notation is *mf* and that the tempo is eighty-eight quarter-notes per minute.

1. Notes receive full value (with each note barely separated from the next), with loud attacks and quick decrescendos.



2. Notes receive full value (with a minimum of space between notes), without loud attacks.

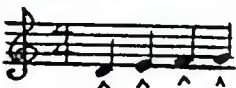
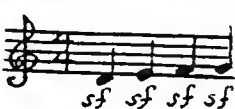






3. Notes shortened in value (each separated from the next), without loud attacks



Brass Articulation Notation Survey--2


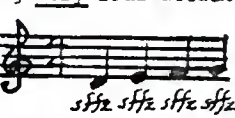
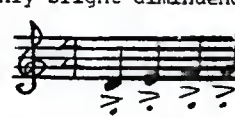


4. Notes shortened in value (each separated from the next), with loud attacks.

a)  b)  c) 
d)  e)  f) 

5. Notes receive full value, with notes louder than normal within the prevailing dynamic (notes accented for the whole of their duration).

a)  b)  c) 
d)  e)  f) 



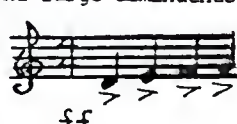



6. Notes shortened in value, receiving very loud attacks, with only slight diminuendos.

a)  b)  c) 
d)  e) 

7. Notes receive full value, with each note stressed or leaned upon (perhaps with each note receiving a slight crescendo).

a)  b)  c) 
d)  e)  f) 

8. Notes receive full value, with very loud attacks, with quick and large diminuendos.





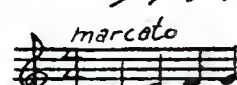
a)  b)  c) 
d)  e)  f) 

Brass Articulation Notation Survey--3

9. Notes are slightly separated, receiving forceful attacks with slight decays.

a)  b)  c) 
d)  e)  f) 

10. Notes are shortened in value, with very loud attacks and quick diminuendos.

a)  b)  c) 
d)  e)  f) 

11. Notes receive slight or some separation, with each note stressed or leaned on (a very slight crescendo on each note).

a)  b)  c) 
d)  e)  f) 

12. Notes receive full value with no separation, receiving diaphragmatic stress, rather than articulated accents.

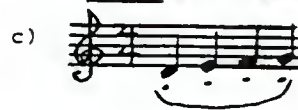
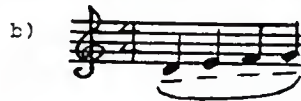
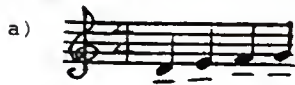
a)  b)  c) 
d)  e)  f) 

13. Notes receive some separation and diaphragmatic stress, rather than articulated accents.

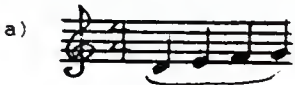
a)  b)  c) 
d)  e)  f) 

Brass Articulation Notation Survey--4

14. Notes are a flow of sound with the beginning of each note just barely articulated.



15. Notes are one flow of sound, with no breaks between them.



Any comments you have concerning brass articulation notation, in general, or this survey, in particular, will be greatly appreciated. Thank you very much for your help.

COMMENTS(Optional):

APPENDIX C

CONDUCTOR ARTICULATION USAGE

To analyze the articulation usage of conductors, 18 different articulations were identified by number. They are

1. Full value(barely separated), loud attacks, quick diminuendo.
2. Full value, without loud attack.
3. Note shortened, without loud attack.
4. Note shortened, with loud attack.
5. Note full value, accented for the whole of its duration.
6. Note shortened, very loud attack, slight diminuendo.
7. Full value, note stressed.
8. Full value, very loud attack, slight decay.
9. Slightly separated, forceful attack, slight decay.
10. Slightly separated, forceful attack, with quick diminuendo.
11. Slight separation, note stressed.
12. No separation, with diaphragmatic stress.
13. Separation, with diaphragmatic stress(not tongued or articulated).
14. Flow of sound with just a bare articulation("d").
15. One flow of sound.
16. Full value, loud attack, slight decay.
17. Fast as possible(but still full value).
18. Shortened note, with loud attack and quick decay.

After listening to each recorded excerpt, the author identified each brass note with a number indicating the articulation used. In cases where instruments are playing unison rhythms, and where brass players use similar articulations, only one number was assigned to the group. In some cases, it was impossible for the author to hear an individual articulation. In those cases, a question mark was used.

J.S. Bach Brandenburg Concerto No. 2
3rd Movement, measures 1-57, The Norton Scores
Kamien, editor

Conductor	Measure															
	1					2					3					
Kehr	4	4	tr	4	4	11	3	3	4	4	tr	3	3	tr	3	3
Paillard	3	3	tr	2	2	2	2	2	3	18	tr	2	2	tr	2	2
Harnoncourt	2	16	tr	3	3	18	3	3	2	3	tr	3	3	tr	3	3
Newman	18	18	tr	2	2	18	2	2	3	18	tr	2	2	tr	2	2
Goberman	4	3	tr	3	3	18	3	3	4	18	tr	3	3	tr	3	3
Horenstein	3	4	tr	3	3	4	3	3	3	18	tr	3	3	tr	3	3
Faerber	3	3	tr	4	4	7	4	4	18	18	tr	4	4	tr	4	4
Borok	18	3	tr	2	2	18	2	2	3	18	18	2	2	tr	2	2
Schwartz	3	3	tr	2	2	18	2	2	4	18	tr	2	2	tr	2	2
Casals	3	3	tr	9	9	11	9	9	3	18	tr	17	17	tr	17	7
Karajan	11	3	tr	3	3	3	3	3	3	11	tr	3	3	tr	3	3

[illegible]

Bach--continued.

	Measure											
Conductor	44	45	46	47	48							
Kehr	9 3 3	3 3 3	3 3 3	3 3 3	3 3 3	3 3 3	3 3 3	3 3 3	3 3 3	3 3 3	3 3 3	3 3 3
Paillard	16 3 3	3 4 4	4 4 4	4 4 4	4 4 4	4 4 4	4 4 4	4 4 4	4 4 4	4 4 4	4 4 4	4 4 4
Harnoncourt	9 3 3	3 3 3	3 3 3	3 3 3	3 3 3	3 3 3	3 3 3	3 3 3	3 3 3	3 3 3	3 3 3	3 3 3
Newman	18 4 4	4 3 3	3 3 3	3 3 3	3 3 3	3 3 3	3 3 3	3 3 3	3 3 3	3 3 3	3 3 3	3 3 3
Goberman	9 3 3	3 10 10	10 10 10	10 10 10	10 10 10	10 10 10	10 10 10	10 10 10	10 10 10	10 10 10	10 10 10	10 10 10
Horenstein	18 3 3	3 18 18	18 18 18	18 18 18	18 18 18	18 18 18	18 18 18	18 18 18	18 18 18	18 18 18	18 18 18	18 18 18
Faerber	14 4 4	18 18 18	18 18 18	18 18 18	18 18 18	18 18 18	18 18 18	18 18 18	18 18 18	18 18 18	18 18 18	18 18 18
Borok	18 2 2	2 2 2	2 2 2	2 2 2	2 2 2	2 2 2	2 2 2	2 2 2	2 2 2	2 2 2	2 2 2	2 2 2
Schwartz	tr 4 4	4 16 16	16 16 16	16 16 16	16 16 16	16 16 16	16 16 16	16 16 16	16 16 16	16 16 16	16 16 16	16 16 16
Casals	14 4 2	14 14 14	14 14 14	14 14 14	14 14 14	14 14 14	14 14 14	14 14 14	14 14 14	14 14 14	14 14 14	14 14 14
Karajan	18 4 4	4 16 16	16 16 16	16 16 16	16 16 16	16 16 16	16 16 16	16 16 16	16 16 16	16 16 16	16 16 16	16 16 16

	Measure											
Conductor	49	50	51	52	53	54						
Kehr	9 9 9	3 3 3	9 9 9	3 3 3	11 11 11	4 4 4	4 4 4	4 4 4	4 4 4	4 4 4	4 4 4	4 4 4
Paillard	16 16 16	4 4 4	16 16 16	4 4 4	16 16 16	4 4 4	4 4 4	4 4 4	4 4 4	4 4 4	4 4 4	4 4 4
Harnoncourt	9 9 9	4 4 4	9 9 9	4 4 4	9 9 9	4 4 4	4 4 4	4 4 4	4 4 4	4 4 4	4 4 4	4 4 4
Newman	18 18 18	3 3 3	18 18 18	3 3 3	18 18 18	3 3 3	3 3 3	3 3 3	3 3 3	3 3 3	3 3 3	3 3 3
Goberman	9 9 9	2 2 2	9 9 9	2 2 2	9 9 9	11 11 11	4 4 4	4 4 4	4 4 4	4 4 4	4 4 4	4 4 4
Horenstein	18 18 18	3 3 3	18 18 18	3 3 3	18 18 18	4 4 4	4 4 4	4 4 4	4 4 4	4 4 4	4 4 4	4 4 4
Faerber	9 9 9	4 4 4	9 9 9	4 4 4	9 9 9	4 4 4	4 4 4	4 4 4	4 4 4	4 4 4	4 4 4	4 4 4
Borok	11 11 11	2 2 2	11 11 11	2 2 2	11 11 11	2 2 2	2 2 2	2 2 2	2 2 2	2 2 2	2 2 2	2 2 2
Casals	4 4 4	3 3 3	4 4 4	3 3 3	4 4 4	9 9 9	2 2 2	2 2 2	2 2 2	2 2 2	2 2 2	2 2 2
Karajan	4 4 4	3 3 3	4 4 4	3 3 3	4 4 4	9 9 9	4 4 4	4 4 4	4 4 4	4 4 4	4 4 4	4 4 4

		Measure														
		55						56						57		
Conductor		4	4	4	4	4	4	4	4	4	4	4	4	4	4	7
Kehr		4	4	4	4	4	4	4	4	4	4	4	4	4	4	tr
Paillard		4	4	4	4	4	4	4	4	4	4	4	4	4	4	tr
Harnoncourt		4	4	4	4	4	4	4	4	4	4	4	4	4	4	tr
Newman		3	3	3	3	3	3	3	3	3	3	3	3	3	3	tr
Goberman		4	4	4	4	4	4	4	4	4	4	4	4	4	4	tr
Horenstein		4	4	4	4	4	4	4	4	4	4	4	4	4	4	tr

*may not be a trumpet

Berg--continued.

Conductor	Instrument	Measure														
Boulez	Hns.	3	3	3	3	1	14	16	342	9	4	4	4	4	4	
	Trts.	16		15	3	3	4	4								
	Tro.&Tuba	10		10	3	2		2	15	4			4		4	
	Hns.					10		10	10	10			10		10	
Ormandy	Hns.	3	3	3	4	1	14	2	18	3	4	4	4	4	4	
	Trts.	12		15	3	3	3	3								
	Tro.&Tuba	9		9		9	12	16	14	4			3		3	
	Hns.					16		9	10	9		9		9		
Böhm	Hns.	3	3	3	4	16	2	2	18	16	16	16	16	16	16	
	Trts.	12		15	15	15	?	?								
	Tro.&Tuba	10		10		10		10	12	12			2		2	
									10	10	10	10	10	10	10	

Conductor	Instrument	Measure															
		343	1	16	4	4	4	4	4	4	344	4	4	1	4	4	4
Leinsdorf	Hns.	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	Trts.	1	1	4	4	4	4	4	4	4	4	4	4	4	4	4	4
	Tro.&Tuba	1	1	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Dorati	Hns.	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	Trts.	1	1	4	4	4	4	4	4	4	4	4	4	4	4	4	4
	Tro.&Tuba	1	1	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Mitropoulos	Hns.	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	Trts.	1	1	4	4	4	4	4	4	4	4	4	4	4	4	4	4
	Tro.&Tuba	1	1	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Boulez	Hns.	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	Trts.	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	Tro.&Tuba	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Ormandy	Hns.	8	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4
	Trts.	18	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
	Tro.&Tuba	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Böhm	Hns.	18	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
	Trts.	4	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	Tro.&Tuba	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10

Berg--continued.

<u>Composer</u> Leinsdorf	<u>Instrument</u> Hns. Trts. Troms. Hns. Trts. Troms.	<u>Measure</u>											
		358	359	360	361	362	363	364	365	366	367	368	369
Dorati	Hns.	7	7	7	7	7	7	7	7	7	7	7	7
	Trts.	16	9	9	9	9	9	9	9	9	9	9	9
	Troms.	1	1	1	1	1	1	1	1	1	1	1	1
	Hns.	16	16	16	16	16	16	16	16	16	16	16	16
	Trts.	9	16	16	16	16	16	16	16	16	16	16	16
	Troms.	9	9	9	9	9	9	9	9	9	9	9	9
Mitropoulos	Hns.	9	9	9	9	9	9	9	9	9	9	9	9
	Trts.	9	7	7	7	7	7	7	7	7	7	7	7
	Troms.	16	16	16	16	16	16	16	16	16	16	16	16
	Hns.	9	9	9	9	9	9	9	9	9	9	9	9
	Trts.	9	1	10	10	10	10	10	10	10	10	10	10
	Troms.	12	10	10	10	10	10	10	10	10	10	10	10
Boulez	Hns.	4	9	9	9	9	9	9	9	9	9	9	9
	Trts.	10	10	10	10	10	10	10	10	10	10	10	10
	Troms.	9	9	9	9	9	9	9	9	9	9	9	9
	Hns.	1	11	11	11	11	11	11	11	11	11	11	11
	Trts.	1	1	1	1	1	1	1	1	1	1	1	1
	Troms.	1	1	1	1	1	1	1	1	1	1	1	1
Ormandy	Hns.	9	9	9	9	9	9	9	9	9	9	9	9
	Trts.	10	10	10	10	10	10	10	10	10	10	10	10
	Troms.	9	9	9	9	9	9	9	9	9	9	9	9
	Hns.	1	11	11	11	11	11	11	11	11	11	11	11
	Trts.	1	1	1	1	1	1	1	1	1	1	1	1
	Troms.	1	1	1	1	1	1	1	1	1	1	1	1
Böhm	Hns.	9	9	9	9	9	9	9	9	9	9	9	9
	Trts.	10	10	10	10	10	10	10	10	10	10	10	10
	Troms.	9	9	9	9	9	9	9	9	9	9	9	9
	Hns.	1	11	11	11	11	11	11	11	11	11	11	11
	Trts.	1	1	1	1	1	1	1	1	1	1	1	1
	Troms.	1	1	1	1	1	1	1	1	1	1	1	1

<u>Composer</u> Leinsdorf	<u>Instrument</u> Hns. Trts. Tros.&Tuba Hns. Trts. Tros.&Tuba Hns. Trts. Tros.&Tuba Hns. Trts. Tros.&Tuba Hns. Trts. Tros.&Tuba	<u>Measure</u>											
		362	363	364	365	366	367	368	369	370	371	372	373
Dorati	Hns.	10	10	10	10	10	10	10	10	10	10	10	10
	Trts.	4	4	4	4	4	4	4	4	4	4	4	4
	Tros.&Tuba	1	1	1	1	1	1	1	1	1	1	1	1
	Hns.	1	1	1	1	1	1	1	1	1	1	1	1
	Trts.	18	10	10	10	10	10	10	10	10	10	10	10
	Tros.&Tuba	10	10	10	10	10	10	10	10	10	10	10	10
Mitropoulos	Hns.	1	1	1	1	1	1	1	1	1	1	1	1
	Trts.	9	16	4	2	14	3	16	1	3	3	3	3
	Tros.&Tuba	1	1	1	1	1	1	1	1	1	1	1	1
	Hns.	10	10	10	10	10	10	10	10	10	10	10	10
	Trts.	10	10	10	10	10	10	10	10	10	10	10	10
	Tros.&Tuba	10	10	10	10	10	10	10	10	10	10	10	10
Boulez	Hns.	10	10	10	10	10	10	10	10	10	10	10	10
	Trts.	10	10	10	10	10	10	10	10	10	10	10	10
	Tros.&Tuba	10	10	10	10	10	10	10	10	10	10	10	10
	Hns.	18	18	18	18	18	18	18	18	18	18	18	18
	Trts.	4	18	4	16	4	16	4	16	4	16	4	16
	Tros.&Tuba	18	18	18	18	18	18	18	18	18	18	18	18
Ormandy	Hns.	10	10	10	10	10	10	10	10	10	10	10	10
	Trts.	10	10	10	10	10	10	10	10	10	10	10	10
	Tros.&Tuba	10	10	10	10	10	10	10	10	10	10	10	10
	Hns.	18	18	18	18	18	18	18	18	18	18	18	18
	Trts.	4	18	4	16	4	16	4	16	4	16	4	16
	Tros.&Tuba	18	18	18	18	18	18	18	18	18	18	18	18

362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000

H. Berlioz Fantastic Symphony
Fifth Movement, Measures 29-39 and 127-241, Norton Critical Scores (1971)

Conductor	Instrument	Measure		
		29	30	31
Mitropoulos	Hns.	16	--	--
	Trts&Cnts.	16	--	16
	Tros&Tubs.	16	--	6
Ormandy	Hns.	16	--	--
	Trts&Cnts.	16	--	16
	Tros&Tubs.	5	--	14
Monteux	Hns.	8	--	--
	Trts&Cnts.	8	--	6
	Tros&Tubs.	8	--	2
Cluytens	Hns.	16	7	7
	Trts&Cnts.	16	7	16
	Tros&Tubs.	16	7	7
Boulez	Hns.	5	--	--
	Trts&Cnts.	5	--	16
	Tros&Tubs.	5	--	?
Munch	Hns.	16	--	--
	Trts&Cnts.	16	--	11
	Tros&Tubs.	16	--	17
Davis	Hns.	16	--	--
	Trts&Cnts.	16	--	11
	Tros.&Tubs.	16	--	9

Berlioz--continued.

Measure

Conductor Instrument

Solti Hns.

Trts&Cnts.

Tros&Tubs.

Hns.

Trts&Cnts.

Tros.&Tubs.

Hns.

Trts&Cnts.

Tros.&Tubs.

Hns.

Trts&Cnts.

Tros&Tubs.

Hns.

Trts&Cnts.

Tros&Tuba

Hns.

Trts&Cnts.

Tros&Tubs.

Hns.

Trts&Cnts.

Tros&Tubs.

Hns.

Trts&Cnts.

Tros&Tubs.

Hns.

Trts&Cnts.

Tros&Tubs.

Hns.

Trts&Cnts.

Tros&Tubs.

Hns.

Trts&Cnts.

Tros&Tubs.

Hns.

Trts&Cnts.

Tros&Tubs.

Hns.

Trts&Cnts.

Tros&Tubs.

Hns.

Trts&Cnts.

Tros&Tubs.

Berlioz--continued.

Conductor	Instrument	Measure															
		33	9	9	3	9	9	3	9	9	3	34	9	9	3	9	35
Ansermet	Hns.	9	9	3	9	9	9	3	9	9	3	9	9	9	3	9	9
	Trts&Cnts.	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
	Tros&Tubs.	9	16	9	16	9	16	9	16	9	16	9	16	9	16	9	9
Martinon	Hns.	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	Trts&Cnts.	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
	Tros&Tubs.	10	16	10	16	10	16	10	16	10	16	10	16	10	16	10	16
Bernstein	Hns.	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
	Trts&Cnts.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Tros&Tubs.	9	2	2	9	2	9	2	9	2	9	2	9	2	9	2	9

Conductor
Mitropoulos

Measure
36

Mitropoulos	Hns.	16	16	7	16	16	7	16	16	7	16	16	7	16	16	7	16
	Trts&Cnts.	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
	Tros&Tubs.	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Ormandy	Hns.	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
	Trts&Cnts.	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
	Tros&Tubs.	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
Monteux	Hns.	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	Trts&Cnts.	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
	Tros&Tubs.	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
Cluytens	Hns.	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
	Trts&Cnts.	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
	Tros&Tubs.	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18

Berlioz--continued.

Conductor	Instrument	Measure																
		146	147	148	149	150	151	152	153	154	155	156	157	163	164	165		
Ansermet	Hns.	9		9	9	9	9	9	9	9	9	9	4	9				
	Troms	16	16	16	16	16	16	16	16	16	16	16	9	3	16			
	Tubas	2												3	3	3		
Martinon	Hns.	16	16	16	16	16	16	16	16	16	16	16	9	4	16			
	Troms	9	9	9	9	9	9	9	9	9	9	9	9	4	16			
	Tubas	16												16	16	9		
Bernstein	Hns&Troms.	16	16	16	16	16	16	16	16	16	16	16	9	4	16			
													16	3	16			
	Tuba	16												16	16	16		

Conductor	Instrument	Measure																
		166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182
Mitropoulis	Hns.											9	9	9	9	9	9	16
	Trts											10	10	10	10	10	10	1
	Troms.											18	18	18	18	18	18	18
Ormandy	Tubas	9	9	9	9	9	9	9	9	9	16							
	Hns&Troms.											10	10	10	10	10	10	10
	Trts.	1	1	1	1	1	1	1	1	1	1	18	18	18	18	18	18	8
Monteux	Tubas											10	10	10	10	10	10	10
	Hns.											18	18	18	18	18	18	18
	Trts.											10	10	10	10	10	10	1
Cluytens	Tubas	6	6	6	6	6	6	6	6	6	16							
	Hns&Troms.											10	10	10	10	10	10	10
	Trts.	9	9	9	9	9	9	9	9	9	16	1	1	1	1	1	1	1
Boulez	Tubas											16	16	16	16	16	16	16
	Hns.											9	9	9	9	9	9	16
	Trts.											2	2	2	2	2	2	2
Munch	Troms.	16	9	9	9	9	9	9	9	9	16							
	Tubas											10	10	10	10	10	10	10
	Hns&Troms.											10	10	10	10	10	10	8
Davis	Trts.	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	Tubas											9	9	9	9	9	9	9
	Hns.											9	9	9	9	9	9	16
	Trts.											16	16	16	16	16	16	16
	Troms.																	
	Tubas	1	1	1	1	1	1	1	1	1	1							

Berlioz--continued.

Conductor	Instrument	Measure																	
		206	207	208	209	210	211	212	213	214	215	216	221	224	225				
Mitropoulos	Hns.	9	9	9	9	9	9	9	9	9	9	4	1	9	9	9			
	Trts.	10	10		10	10	10	10	10	10	10	2	18	10	6	9	9		
	Troms.	18	18	18	18	18	18	18	18	18	18	9	4	16	5	9	9		
Ormandy	Hns.&Troms.	10	10	10	10	10	10	10	10	10	10	1	11	1	5	9	9		
	Trts.	9	9		9	9	9	9	9	9	9	9	11	16	5	16	16	16	
Monteux	Hns.	18	18	18	18	18	18	18	18	18	18	9	4	18	5	6	6		
	Trts.	10	10		10	10	10	10	10	10	10	10	6	18	5	6	6		
	Troms.	1	1	1	1	1	1	1	1	1	1	1	4	1	5				
Cluytens	Hns.	10	10	10	10	10	10	10	10	10	10	10	10	1	5	16	16	16	
	Trts.	1	1		1	1	1	1	1	1	1	1	4	1	16	16	16	16	
	Troms.	10	10	10	10	10	10	10	10	10	10	10	18	16	2				
Boulez	Hns.	3	3	3	3	3	3	3	3	3	3	3	3	2	5	9	9		
	Trts.	16	16		16	16	16	16	16	16	16	16	3	16	5	9	9		
	Troms.	16	16	16	16	16	16	16	16	16	16	16	4	10	5				
Munch	Hns.	10	10	10	10	10	10	10	10	10	10	10	4	1	5	10	10	10	
	Trts.	10	10		10	10	10	10	10	10	10	10	18	10	11	10	10	10	
	Troms.	10	10	10	10	10	10	10	10	10	10	10	4	1	6				
Davis	Hns&Troms.	9	9	9	9	9	9	9	9	9	9	9	4	16	5	9	9		
	Trts.	9	9		9	9	9	9	9	9	9	9	4	9	5	9	9		
Solti	Hns&Troms	9	9	9	9	9	9	9	9	9	9	9	4	16	18	9	9		
	Trts.	9	9		9	9	9	9	9	9	9	9	4	9	18	9	9		
Conlon	Hns	16	16	16	16	16	16	16	16	16	16	9	3	16	18	9	9		
	Trts.	16	16		16	16	16	16	16	16	16	16	3	16	16	9	9		
	Troms	16	16	16	16	16	16	16	16	16	16	16	4	16	16				
Ansermet	Hns.	9	9	9	9	9	9	9	9	9	9	16	3	16	2	9	9		
	Trts.	16	16		16	16	16	16	16	16	16	16	3	16	2	9	9		
	Troms.	9	9	9	9	9	9	9	9	9	9	9	4	16	2				
Martinon	Hns.	16	16	16	16	16	16	16	16	16	16	9	4	16	1	9	9		
	Trts.	10	10		10	10	10	10	10	10	10	10	4	1	1	10	10	10	
	Troms.	9	9	9	9	9	9	9	9	9	9	9	4	16	5				
Bernstein	Hns.	16	16	16	16	16	16	16	16	16	16	16	4	16	16	9	9		
	Trts.	11	16		9	16	9	9	16	16	16	9	4	16	16	9	9		
	Troms.	9	9	9	9	9	9	9	9	9	9	9	4	16	16				

Berlioz--continued.

Conductor	Instrument	Measure										
		228	229	230	232	233	234	235	236			
Mitropoulos	Hns, Tts, Cts.	9	9	9	9	9	9	9	3	3	3	3
	Hns.	9	9	9	9	9	9	9	4	4	4	4
Ormandy	Trts&Cts.	16	16	16	16	16	16	16	3	3	3	3
	Hns	6	6	6	6	6	6	6	6	6	6	6
Monteux	Trts&Cts.	6	6	6	6	6	6	6	11	11	11	11
	Hns, Tts, Cts.	9	9	16	9	9	9	9	4	4	4	4
Cluytens	Hns, Tts, Cts.	9	9	16	9	9	9	9	9	9	9	9
	Hns, Tts, Cts.	9	9	16	9	9	9	9	9	9	9	9
Boulez	Hns, Tts, Cts.	10	10	10	10	10	10	10	18	18	18	18
	Hns, Tts, Cts.	9	9	9	9	9	9	9	9	9	9	9
Davis	Hns, Tts, Cts.	9	9	9	9	9	9	9	10	10	10	10
	Hns.	9	9	9	9	9	9	9	9	9	9	9
Solti	Trts&Cts.	9	9	9	9	9	9	9	9	9	9	9
	Hns.	9	9	9	9	9	9	9	10	10	10	10
Conlon	Trts&Cts.	9	9	9	9	9	9	9	9	9	9	9
	Hns, Tts, Cts.	9	9	9	9	9	9	9	9	9	9	9
Ansermet	Hns, Tts, Cts.	9	9	9	9	9	9	9	3	3	3	3
	Hns.	9	9	9	9	9	9	9	10	10	10	10
Martinon	Trts&Cts.	10	10	10	10	10	10	10	10	10	10	10
	Hns.	9	9	9	16	16	16	16	4	4	4	4
Bernstein	Trts&Cts.	9	9	9	9	9	9	9	3	3	3	3

Conductor	Instrument	Measure										
		237	238	239	240	241						
Mitropoulos	Hns.	3	3	3	3	3	3	3	16	18	18	18
	Trts.	3	3	3	3	3	3	3	2	18	18	18
Ormandy	Cts, Tros, Tu.	4	4	4	4	4	4	4	16	16	18	18
	Hns.	4	4	4	4	4	4	4	16	18	18	18
Monteux	Trts.	3	3	3	3	3	3	3	2	18	18	18
	Crnts.	18	18	18	18	18	18	18	1	18	18	18
Cluytens	Tros&Tubs.	6	6	6	6	6	6	6	1	16	18	18
	Hns.	11	11	11	11	11	11	11	1	6	6	6
Ormandy	Trts.	11	11	11	11	11	11	11	16	6	6	6
	Crnts.	11	11	11	11	11	11	11	11	6	6	6
Monteux	Tros&Tubs.	4	4	4	4	4	4	4	16	12	6	6
	Hns.	4	4	4	4	4	4	4	2	11	11	11
Cluytens	Trts.	4	4	4	4	4	4	4	16	2	2	2
	Crnts.	4	4	4	4	4	4	4	16	16	11	11
Ormandy	Tros&Tubs.	4	4	4	4	4	4	4	16	16	11	11
	Hns.	4	4	4	4	4	4	4	16	16	11	11

Rehearsal No. 10, Measure																		
Conductor	Instrument	14	15	17	18	19												
Stokowski	Trpts.	9	3	3	4	3	16	2	3	2	14	14	2	7	9	2	14	14
LSO	Trpts.	2	16	15	9	3	16	3	2	16	15	15	14	3	2	16	15	15
Boulez	Trpts.	9	3	3	3	3	2	4	9	4	4	4	16	4	9	4	4	4
Munch	Trpts.	9	4	4	9	4	16	4	9	4	4	4	16	4	9	4	4	4
Monteux	Trpts.	16	16	15	9	3	2	4	16	16	12	12	12	4	16	16	12	12
Bernstein	Trpts.	4	16	14	4	3	16	5	4	3	3	3	16	5	3	3	3	3
Giulini	Trpts.	2	16	14	14	3	3	2	5	11	2	14	14	16	3	2	14	14
Ormandy	Trpts.	9	2	2	9	3	16	17	6	2	2	2	16	17	16	2	2	2
Froment	Trpts.	3	3	3	9	3	16	4	16	3	3	3	16	4	16	3	3	3
Goberman	Trpts.	11	2	15	3	3	2	3	7	2	14	14	3	3	7	2	14	14
Paray	Trpts.	11	4	4	9	3	2	4	5	4	4	4	16	4	5	4	4	4
Silvestri	Trpts.	9	14	13	16	2	16	2	1	4	4	4	2	4	4	18	4	4
		16	--	--	--	--	16	--	--	--	--	--	16	--	--	--	--	--

Debussy--continued.

Conductor	Instrument	Rehearsal No. 13, Measure											
		12	1	3	3	1	3	3	1	3	3	1	15
Bernstein	Hns.	1	3	3	1	3	4	3	1	3	3	1	16
	Tps.Tro,Tu.	9	4	9	4	4	4	4	16	4	4	4	16
Giulini	Hns.	10	3	3	10	3	3	10	3	3	10	3	1
	Tps,Tro,Tu	3	7	10	4	4	4	4	16	4	4	4	1
Ormandy	Hns.	11	4	4	11	4	4	11	4	4	11	4	16
	Trpts.	10	5	10	6	6	6	16	6	4	4	4	16
Froment	Tros&Tuba	10	5	10	6	6	6	16	6	4	4	4	16
	Hns.	11	4	4	11	4	4	11	4	4	11	4	1
Goberman	Trpts.	10	4	10	6	6	6	16	6	6	6	6	5
	Tros&Tuba	10	4	10	6	6	6	16	6	6	6	6	1
Paray	Hns.	10	3	3	10	3	3	10	3	3	10	3	4
	Trpts.	18	3	18	4	4	4	2	4	4	4	4	2
Silvestri	Troms.	18	3	18	4	4	4	2	4	4	4	4	4
	Tuba							16					4
LSO	Hns.	9	3	3	9	3	3	9	3	3	9	3	9
	Tps,Tro,Tu.	10	4	10	4	4	4	16	4	4	4	4	9
Stokowski	Hns.	7	14	14	7	14	14	7	14	14	7	14	18
	Trpts.	9	16	9	4	4	4	16	4	4	4	4	18
Boulez	Tros&Tuba	9	16	9	4	4	4	16	4	4	4	4	4
	Trpts.	16	16	15	16	10	16	15	17	7			4
Munch	Trpts.	16	16	15	9	4	16	15	17				
	Tros&Tuba	16	16	9	4	16	16	17					
Munch	Hns&Trts.	16	2	15	16	16	2	15	17	12			
	Tros&Tuba	16	16	16	16	16	16	17					
Munch	Hns.	16	16	15	16	16	16	15	17				
	Trpts.	16	16	12	16	16	16	15	17				
Munch	Troms.	16	16	16	16	16	16	17					
	Tuba	1	1	1	1	1	1	1	17				

Conductor	Instrument	Rehearsal No. 14											
		16	17	18	16	16	15	17	16	15	17	16	17
Stokowski	Hns.	16	16	15	16	16	16	15	17				
	Trpts	9	16	12	16	16	9	16	12	17			
LSO	Tros&Tuba	9	9	16	16	9	9	17					
	Trpts.	16	16	15	16	10	16	15	17				
Boulez	Trpts.	16	16	15	9	4	16	15	17				
	Tros&Tuba	16	16	9	4	16	16	17					
Boulez	Hns&Trts.	16	2	15	16	16	2	15	17	12			
	Tros&Tuba	16	16	16	16	16	16	17					
Munch	Hns.	16	16	15	16	16	16	15	17				
	Trpts.	16	16	12	16	16	16	15	17				
Munch	Troms.	16	16	16	16	16	16	17					
	Tuba	1	1	1	1	1	1	1	17				

Conductor	Instrument	Rehearsal No. 13, Measure			
		16	17	18	19
Monteux	Hns.&Trts.	16	16	17	18
	Troms.	16	16	16	16
	Tuba	9	9	16	10
		9	9	16	10
Bernstein	Hns.	16	16	15	1
	Trpts.	16	16	15	1
	Tros&Tuba	16	16	16	1
	Hns.	16	16	15	1
Giulini	Trpts.	16	16	15	1
	Tros&Tuba	16	2	7	1
	Hns.&Trts.	16	16	15	16
	Tros.&Tuba	16	16	16	16
Ormandy	Hns.	1	15	1	1
	Trpts.	16	16	15	16
	Tros&Tuba	1	1	1	1
	Hns.	16	16	15	9
Goberman	Trpts.	2	2	15	2
	Tros&Tuba	9	9	9	4
	Hns.	16	16	15	16
	Trpts.	16	2	15	2
Paray	Tros&Tuba	16	16	15	16
	Hns.	16	2	15	16
	Trpts.	16	2	16	9
	Tros&Tuba	10	16	14	9
Silvestri	Hns.	--	10	--	--
	Trpts.	11	16	14	9
	Tros&Tuba	18	18	16	4

F. J. Haydn Trumpet Concerto
Measures 37-83, Bowman Piano Reduction, G. Schirmer, Inc. (1963)

	Measure					
	37	38	39	40	41	42
Conductor	2	2	2	2	2	2
Paillard	2	2	3	3	3	3
Heiller	2	2	2	3	3	3
Bamberger	2	15	15	15	15	15

Mahler--continued.

		Measure															
Conductor	Instrument	357	358	359	360	361	362	363	364	365	366	367	368				
Mitropoulos	Hns.	1	3	3	3	16	3	4	4	16	2	2	16	2	2	16	17
	Trpts	2			2			2									
	Tuba	18			18												
Horenstein	Hns.	16	4	16	16	16	16	16	16	16	16	16	16	16	16	16	2
	Trpts.	2			2			16									2
	Tuba	18			18												
Haitink	Hns.	16	4	16	16	16	4	16	16	16	2	2	16	2	2	16	2
	Trpts.	16			16			16									2
	Tuba	1			1												
		Measure															
Conductor	Instrument	369	370	371	372	373	374										
Walter	Hns.	16	11	11	11	3	3	4	4	4	4	4	1	1			
	Trpts.		4	16	16	8							2	16	4	7	7
	Tros&Tuba		4	9	9	1							1				
Brief	Hns.	2	1	1		17	17	11	11	11	11	11	16	7	1		
	Trpts.		4	16	16	1							3	9	4	4	4
	Tros&Tuba		3	16	16	1							1				
Leinsdorf	Hns.	16	16	16	16	?	?	4	4	4	4	4	1	4	1	1	
	Trpts.		4	7	7	1							7	9	9	9	9
	Tros&Tuba		4	1	1	1							5				
Solti	Hns.	16	7	7	7	?	?	4	4	4	4	4	16	3	16	16	
	Trpts.		5	16	16	1							2	16	3	11	11
	Tros&Tuba		7	6	6	1							16		16		
Mitropoulos	Hns.	16	4	4	4	?	?	3	3	3	3	3	16	16	16	16	
	Trpts.		3	9	9	7							2	9	9	9	9
	Tros&Tuba												1				
Horenstein	Hns.	16	4	4		17	17	4	4	4	4	4	2	3	16	16	
	Trpts		5	16	16	16							2	16	9	9	9
	Tros&Tuba												1				
Haitink	Hns.	16	11	11	11	2	16	16	1				16	16	16	16	
	Trpts.		4	16	16	16							7	9	9	7	7
	Tros&Tuba		11	1	1	1							1				

Rimsky-Korsakov--continued.

Conductor	Instrument	Rehearsal "V", Measure									
		5	6	7	8	9	10	11	12	13	14
Stokowski	Hns.	2	3	3	3	3	3	3	3	3	3
	Trpts.	2	16				2	16			2
	Tuba	2	3	3	3	3	3	3	3	3	3
Slatkin	Hns.	?	-----								
	Trpts.	4	7	3	3	4	4	16	7	3	4
	Tuba	2	3	3	3	4	16	16	3	3	3
Galliera	Hns.	16	16			16	16				16
	Trpts.	16	3	3	3	3	3	3	3	3	3
	Tuba	16	7	12		16	7	7	12	12	16
Martinon	Hns.	16	3	3	3	3	3	3	3	3	3
	Trpts.	16	16			16	16				16
	Tuba	16	3	3	3	4	16	16	3	3	3
Barenboim	Hns.	10	7	3	3	10	7	7	3	3	10
	Trpts.	16	3	3	3	4	16	16	3	3	4
	Tuba	16	16			16	16				16
Prêtre	Hns.	2	9	9	9	9	9	9	9	9	9
	Trpts.	16	17	12		16	16	16	12	12	16
	Tuba	2	9	9	9	9	9	9	9	9	9
Bernstein	Hns.	3	3	3	3	4	16	16	3	3	4
	Trpts.	3	7	2		2	7	2	7	2	3
	Tuba	3	3	3	3	4	16	16	3	3	4
Bernstein	Hns.	2	2			2	2	2	3	3	2
	Trpts.	16	3	3	3	3	3	3	3	3	4
	Tuba	10	7	2		10	10	10	7	2	10
Bernstein	Hns.	16	3	3	3	3	3	3	3	3	4
	Trpts.	10	10			10	10	10	3	3	10
	Tuba	10	10			10	10	10	3	3	10

Rimsky-Korsakov--continued.

Conductor	Instrument	Rehearsal "V", Measure									
		12	13	14	15	16	17	18	19	20	21
Ormandy	Hns.	3	3	3	3	16	16	9	15	16	17
	Trpts.	3	3	3	3	16	17	17	17	17	17
	Tuba	2	3	3	3	16	2	3	3	3	3
Mehlich	Hns.	3	3	3	3	16	2	2	2	2	2
	Trpts.	3	3	3	3	1	17	17	17	17	17
	Tuba	16	3	3	3	16	16	16	16	16	16
Stokowski	Hns.	3	3	3	3	16	2	2	2	2	2
	Trpts.	3	3	3	3	16	17	17	17	17	17
	3,4 hns.	16	3	3	3	16	2	2	2	2	2
Slatkin	Tuba	16	3	3	3	16	16	16	16	16	16
	Horns	7	3	3	3	16	4	7	1	7	1
	Trpts.	3	3	3	3	16	2	2	2	2	2
Galliera	Tuba	16	3	3	3	16	16	16	16	16	16
	Hns.	7	12	3	3	16	16	16	16	16	16
	Trpts.	3	3	3	3	16	17	17	17	17	17
Martinon	Tuba	16	3	3	3	16	16	16	16	16	16
	Hns.	3	3	3	3	16	10	16	2	16	2
	Trpts.	7	3	3	3	16	2	2	2	2	2
Barenboim	Tuba	16	3	3	3	16	16	16	16	16	16
	Hns.	9	9	9	9	1	2	2	2	2	2
	Trpts.	7	12	3	3	16	16	16	16	16	16
Prêtre	Tuba	16	3	3	3	16	16	16	16	16	16
	Hns.	3	3	3	3	16	3	3	3	3	3
	Trpts.	7	2	3	3	16	3	3	3	3	3
Bernstein	Tuba	2	3	3	3	16	17	17	17	17	17
	Hns.	7	3	3	3	16	2	2	2	2	2
	Trpts.	10	3	3	3	16	10	10	10	10	10

Rimsky-Korsakov--continued.

Conductor	Instrument	Rehearsal "V", Measure		Rehearsal "W", Measure	
		18	19	1	2
Ormandy	Hns.	16	9	2	4
	Trpts.	17 17 17 3	17 17 17 3	1 1 1 1	17 17 17 3
	Troms.			2 1	2 2 2
	Tuba	2	2	2	2
Mehlich	Hns.	2	2	?	-----
	Trpts.	17 17 17 2	17 17 17 1	?	-----
	Tros&Tuba	16	16	3 16	3 3
	Hns.	2	2	?	4
Stokowski	Trpts.	17 17 17 3	17 17 17 3	?	-----
	Troms.			4 16	4 4 4
	Tuba	16	16	?	?
	Hns.	7	1	?	3
Slatkin	Trpts.	2 2 2 3	2 2 2 3	?	-----
	Tros&Tuba	16	16	3 16	3 3
	Hns.	16	16	2	2
	Trpts.	17 17 17 3	17 17 17 3	4 4 4 4	4 4 4
Galliera	Tros&Tuba	16	16	16	16
	Hns.	16	16	?	3
	Trpts.	2 2 2 3	2 2 2 3	16 16 16 4	16 16 16 4
	Tros&Tuba	16	16	3 16	4 4 4
Martinon	Hns.	16	2	2	2
	Trpts.	2 2 2 3	2 2 2 3	16	16
	Tros&Tuba	16	16	2	2
	Hns.	16	16	3 16	3 3 3 3
Barenboim	Trpts.	3 3 3 3	3 3 3 3	?	4 4 4
	Tros&Tuba	16	16	?	4
	Hns.	16	3	?	-----
	Trpts.	17 17 17 2	17 17 17 2	1	4 4 4
Prêtre	Troms	2	2	2	2
	Tuba	4	16	?	2
	Hns.	2 2 2 3	2 2 2 3	?	-----
	Trpts.	10	10	4 10	4 4 4

Rimsky-Korsakov--continued.

Conductor	Instrument	Rehearsal "W", Measure						
		3	4	5	6	7	7	7
Ormandy	Hns.		4	4	4	4	4	4
	Trpts.		17 17 17	3 17 17 17	3 17 17 17	3 17 17 17	3 17 17 17	3 17 17 17
	Troms.	1	2 2 2	2 2 1	2 2 2	2 2 1	2 2 1	2 2 2
	Tuba	2	2	2	2	2	2	2
Mehlich	Hns.	?	-----	-----	-----	-----	-----	-----
	Trpts	?	-----	-----	-----	-----	-----	-----
	Tros&Tuba	16	3 3 3	3 16	3 3 3	3 16	3 16	3 16
	Hns.		4	4	4	4	4	4
Stokowski	Trpts	?	-----	-----	-----	-----	-----	-----
	Tros&Tuba	16	4 4 4	4 16	4 4 4	4 16	4 16	4 16
	Hns.		3	3	3	3	3	3
	Trpts.	?	-----	-----	-----	-----	-----	-----
Slatkin	Tros&Tuba	16	4 4 4	4 16	4 4 4	4 16	4 16	4 16
	Hns.		4	4	4	4	4	4
	Trpts.	?	-----	-----	-----	-----	-----	-----
	Tros&Tuba	16	4 4 4	4 16	4 4 4	4 16	4 16	4 16
Galliera	Hns.		4 4 4	4 16	4 4 4	4 16	4 16	4 16
	Trpts.	?	-----	-----	-----	-----	-----	-----
	Tros&Tuba	16	4 4 4	4 16	4 4 4	4 16	4 16	4 16
	Hns.		4	4	4	4	4	4
Martinon	Trpts.	?	-----	-----	-----	-----	-----	-----
	Tros&Tuba	16	4 4 4	4 16	4 4 4	4 16	4 16	4 16
	Hns.		4	4	4	4	4	4
	Trpts.	?	-----	-----	-----	-----	-----	-----
Barenboim	Tros&Tuba	16	4 4 4	4 16	4 4 4	4 16	4 16	4 16
	Hns.		4	4	4	4	4	4
	Trpts.	?	-----	-----	-----	-----	-----	-----
	Tros&Tuba	16	4 4 4	4 16	4 4 4	4 16	4 16	4 16
Prêtre	Hns.		4	4	4	4	4	4
	Trpts.	?	-----	-----	-----	-----	-----	-----
	Troms.	1	4 4 4	4 1	4 4 4	4 1	4 1	4 1
	Tuba	2	2	2	2	2	2	2
Bernstein	Hns.	?	-----	-----	-----	-----	-----	-----
	Trpts.	10	4 4 4	4 10	4 4 4	4 10	4 10	4 10
	Tros&Tuba							
	Hns.							

Rimsky-Korsakov--continued.

Conductor	Instrument	Rehearsal "X", Measure							Coda, Measure				
		6	7	8	9	10	11	12	1	2	3	4	5
Ormandy	Hns.	3	3	3	3	3	3	3	3	2	2	2	2
	Trpts.	3	3	3	3	3	3	3	3	3	3	3	2
	Troms.	4	4	4	4	4	4	4	4	4	4	4	3
	Tuba												3
Mehlich	Hns.&Trts.	4	4	4	4	4	4	4	4	4	4	4	3
	Troms	4	4	4	4	4	4	4	4	4	4	4	3
	Hns.	3	3	3	3	3	3	3	3	3	3	3	3
	Trpts.	2	2	2	2	2	2	2	2	2	2	2	3
Stokowski	Troms.	3	3	3	3	3	3	3	3	3	3	3	3
	Tuba												3
	Hns.	3	3	3	3	3	3	3	3	3	3	3	3
	Trpts.	3	3	3	3	3	3	3	3	3	3	3	3
Slatkin	Hns.	3	3	3	3	3	3	3	3	3	3	3	3
	Trpts.	3	3	3	3	3	3	3	3	3	3	3	3
	Troms.	3	3	3	3	3	3	3	3	3	3	3	3
	Hns.	2	2	2	2	2	2	2	2	2	2	2	2
Galliera	Trpts.	2	2	2	2	2	2	2	2	2	2	2	2
	Troms.	3	3	3	3	3	3	3	3	3	3	3	3
	Hns.	3	3	3	3	3	3	3	3	3	3	3	3
	Trpts.	3	3	3	3	3	3	3	3	3	3	3	3
Martinon	Hns.&Tros.	2	2	2	2	2	2	2	2	2	2	2	2
	Troms.	3	3	3	3	3	3	3	3	3	3	3	3
	Hns.	2	2	2	2	2	2	2	2	2	2	2	2
	Trpts.	3	3	3	3	3	3	3	3	3	3	3	3
Barenboim	Hns.	2	2	2	2	2	2	2	2	2	2	2	2
	Trpts.	3	3	3	3	3	3	3	3	3	3	3	3
	Troms.	2	2	2	2	2	2	2	2	2	2	2	2
	Hns.&Trpts.	4	4	4	4	4	4	4	4	4	4	4	4
Prêtre	Troms	4	4	4	4	4	4	4	4	4	4	4	4
	Tuba												
	Hns.&Trts.	3	3	3	3	3	3	3	3	3	3	3	3
	Troms.	3	3	3	3	3	3	3	3	3	3	3	3
Bernstein	Hns.&Trts.	3	3	3	3	3	3	3	3	3	3	3	3
	Troms.	3	3	3	3	3	3	3	3	3	3	3	3
	Hns.	3	3	3	3	3	3	3	3	3	3	3	3
	Trpts.	3	3	3	3	3	3	3	3	3	3	3	3

Conductor	Instrument	Rehearsal "Y", Measure						
		6	7	8	9	10	11	12
Ormandy	Hns.	2	2	2	2	2	2	2
	Trpts.	3	3	3	3	3	3	3
	Troms.	3	3	3	3	3	3	3
	Tuba	1	1	1	1	1	1	1
Mehlich	Hns.	3	2	2	2	2	2	2
	Trpts.	2	2	2	2	2	2	2
	Tros&Tuba	3	11	3	11	3	11	3

Rimsky-Korsakov--continued.

Conductor	Instrument	R. "Y", Measure		Rehearsal "Z", Measure	
		19	20	1	2
Mehlich	Hns.	4	4 4 4	4	3
		4	4 4 4	4	3
Stokowski	Trpts.	4	4 4 4	4	3
	Tros&Tuba	4	4 4 4	4	3
Hns.		4	4 4 4	4	3
		4	4 4 4	4	3
Trpts.		4	4 4 4	4	3
		4	4 4 4	4	3
Tros&Tuba		4	4 4 4	4	3
		4	4 4 4	4	3
Hns.		4	4 4 4	4	3
		4	4 4 4	4	3
Slatkin	Trpts.	4	4 4 4	4	3
		4	4 4 4	4	3
Tros&Tuba		4	4 4 4	4	3
		4	4 4 4	4	3
Hns.		4	4 4 4	4	3
		4	4 4 4	4	3
Galliera	Trpts.	4	4 4 4	4	3
		4	4 4 4	4	3
Tros&Tuba		4	4 4 4	4	3
		4	4 4 4	4	3
Hns.		4	4 4 4	4	3
		4	4 4 4	4	3
Martinon	Trpts.	4	4 4 4	4	3
		4	4 4 4	4	3
Tros&Tuba		4	4 4 4	4	3
		4	4 4 4	4	3
Hns.		4	4 4 4	4	3
		4	4 4 4	4	3
Barenboim	Trpts.	4	4 4 4	4	3
		4	4 4 4	4	3
Tros&Tuba		4	4 4 4	4	3
		4	4 4 4	4	3
Hns.		4	4 4 4	4	3
		4	4 4 4	4	3
Prêtre	Trpts.	4	4 4 4	4	3
		4	4 4 4	4	3
Tros&Tuba		4	4 4 4	4	3
		4	4 4 4	4	3
Hns.		4	4 4 4	4	3
		4	4 4 4	4	3
Bernstein	Trpts.	4	4 4 4	4	3
		4	4 4 4	4	3
Tros&Tuba		4	4 4 4	4	3
		4	4 4 4	4	3
Hns.		4	4 4 4	4	3
		4	4 4 4	4	3

Sousa--continued.

<u>Conductor</u>	<u>Instrument</u>	<u>Measure</u>							
<u>Ormandy</u>	<u>Trms.</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>			
	Tuba	1 15 4 4 1 15 4 4 4 4	1 15 3 3 1 15 3 3 11 11	9 9 10 10 10	10 10 10 10 10				
Kline	FH, Tro, Eu, & Tu.	1 15 3 3 1 15 3 3 9 9	9 9 9 9 9 9 2 12 12 12	9 3 3 3					
Fiedler	Trpts.								
	FH, Trt, Tro, & Tu.	16 15 4 4 16 15 4 4 4 4	3 3 18 18 18 18 18 18 18 18	4 4 4 4 2 12 12 12	9 3 3 3				
Kostelanetz	FH, Tro, Tu.	16 15 3 3 16 15 3 3 9 9	9 9 9 9 9 9 9 9 9 9						
	Trpts.	16 15 3 3 16 15 3 3 9 9	9 9 9 9 9 9 16 14 14 14	10 4 4 4					
Kunzel	FH, Tro, Tu.	16 15 3 3 16 15 3 3 18 18	18 18 18 18 18 18 18 18 18 18						
	Trpts.	16 15 3 3 16 15 3 3 3 3	3 3 18 18 18 18 18 18 16 14	14 9 2 3 3					
Bashford	F. Horns	1 14 4 4 1 14 4 4 18 18	18 18 18 18 18 18 18 18 18 18	11 11 11 11					
	Trt, Tro, Eu & Tu.	1 14 4 4 1 14 4 4 18 18	18 18 18 18 18 18 16 15 15 16	13 2 2					

<u>Conductor</u>	<u>Instrument</u>	<u>Measure</u>							
<u>Bachman</u>	<u>FH & Trs.</u>	<u>10</u>	<u>11</u>	<u>12</u>	<u>13</u>	<u>14</u>	<u>15</u>		
	Trpts.	18 18 18 18 18 18 18 18 18 18	11 4 4 4 4 4 4 4 4 4	10 10 10 10 10 10 10 10 10 10	10 10 10 10 10 10 10 10 10 10				
	Eu & Tuba	18 18 18 18 18 18 18 18 18 18	16 15 15 15 15 15 15 15 15 15	3 3 3 3 3 3 3 3 3 3	18 18 18 18 18 18 18 18 18 18				
Sousa	FH & Tuba	9 9 9 9 9 9 9 9 9 9	18 4 4 4 4 4 4 4 4 4	9 9 9 9 9 9 9 9 9 9					
	Trpts & Eu.	4 9 9 9 9 9 9 9 9 9	16 16 16 16 16 16 16 16 16 16	4 4 4 4 4 4 4 4 4 4	9 9 9 9 9 9 9 9 9 9				
	Trms.	9 9 9 9 9 9 9 9 9 9	9 9 9 9 9 9 9 9 9 9	11 11 11 11 11 11 11 11 11 11					
Ormandy	FH, Trt, Tro, & Tuba	10 10 10 10 10 10 10 10 10 10	16 14 14 14 14 14 14 14 14 14	9 4 4 4 4 4 4 4 4 4	10 10 10 10 10 10 10 10 10 10				
Kline	FH, Trt, Tro, Eu & Tu.	4 4 4 4 4 4 4 4 4 4	16 14 14 14 14 14 14 14 14 14	9 3 3 3 3 3 3 3 3 3	4 4 4 4 4 4 4 4 4 4				
Fiedler	FH, Tro & Tu.	18 18 18 18 18 18 18 18 18 18	18 18 18 18 18 18 18 18 18 18	1 9 4 4 4 4 4 4 4 4	18 18 18 18 18 18 18 18 18 18				
	Trpts.	4 18 18 18 18 18 18 18 18 18	16 14 14 14 14 14 14 14 14 14	9 4 4 4 4 4 4 4 4 4	18 18 18 18 18 18 18 18 18 18				

Conductor	Instrument	Measure
Kostelanetz	FH Tro, Tu	16
	Trpts.	11 11 18
	FH, Tro, Tu.	11 11 11
	Trpts.	11 11 11
		11 11 11
Kunzel		17
		9 4 4 4
		9 4 4 4
		1 3 4 4
		10 3 3 4
Bashford	FH, Tro, Tu.	11 11 11 10
	Trts&Eu.	10 10 16
		10 16 15 15
		10 16 15 15
		10 16 15 15

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Sousa--continued.

		Measure										
Conductor	Instrument	27	28	29	30	31	32					
Bachman	F. Horns	?	-----									
	Trt&Eu.	16		16 16 16	15 15 16	16	15 14				15	4
	Troms.	4 4 4	16 15		16 15 15 16	4	9 9 9				16 15	
	Tuba	4 4 4	4 4	4 4	4 4	4 4	4 4				4 4	
Sousa	F. Horns	?	-----									
	Trt&Eu.	2		16 15 16	12 15 16	16	15 14				15	16
	Troms.	9 9 9	9 12		16 14 14 16	2	9 9 9				2 15	
	Tuba	18 18	18	18	18 18	18	18 18				18 18	
Ormandy	F. Horns	2	2	2	2	2	2	2			2	2
	Trpts.	16		16 15 16	12 15 16	16	15 16				15 16	
	Troms.	3 3 2	2 14		16 15 15 16	4	9 9 9				16 14	
	Tuba	18 18	18	18	18 18	18	18 18				18 18	
Kline	F. Horns.	2	2	2	2	2	2	2			2	2
	Trt&Eu.	16		16 15 16	16 15 16	16	3 16				16 16	4
	Troms.	4 4 9	2 15		16 16 4 16	2	9 9 16				2 14	
	Tuba	18 18	18	18	18 18	18	18 18				18 18	
Fiedler	F. Horns	4	4	4	4	4	4	4			4	4
	Trpts.	1		1 15 1	16 15 1	16	14 16				15 15	3
	Troms.	4 4 4	4 14		16 12 12 16	4	9 9 9				16 14	
	Tuba	9 9 9	9 9	9 9	9 9	9 9	9 9				9 9	
Kostelanetz	F. Horns	?	-----									
	Trpts	16		16 15 16	16 15 16	16	15 2				15 15	3
	Troms.	4 4 4	2 15		16 15 15 16	9	4 4 4				2 15	
	Tuba	?	-----									
Kunzel	F. Horn	16	16	16	16	16	16	16			16	16
	Trpts.	2		16 15 2	16 15 16	16	15 2				12 12	3
	Troms.	4 4 6	16 16	16	16 12 12 16	2	16 16 16				2 14	
	Tuba	1 1 1	1 1	1 1	1 3 1	1 1	1 1 1				1 1	
Bashford	F. Horns	?	-----									
	Trpts.	2		16 15 2	15 15 16	2	15 2				15 15	3
	Troms.	9 9 9	4 16		9 9 9	9	9 9 9				4 2	
	Euph.	2		16 15 2	16 15 2	15	15 16				2 2	15
	Tuba	9 9	9	9	9	9	9				9 9	9

Sousa--continued.

Conductor	Instrument	Measure						
Bachman		33	34	35	36	37	38	
Sousa	F.Horns	33	34	35	36	37	38	
	Trts&Eu.	16	15 15 16	15 15 16	16	16 15 16 14	16	16
	Troms.	16	15 15 1	16 14 14 16	16	4 16	9 9 9	9
	Tuba	4	4 4	4 4	4	4	4	4
Ormandy	F.Horns	?	?	?	?	?	?	?
	Trts&Eu.	2	12 15 16	12 15 2	16	16 15 2 15	16	2
	Troms.	16	15 15 16	16 15 15 16	16	2 9	9 9 9	9
	Tuba	18	18 18	18 18	18	18	18	18
Kline	F.Horns	2	2 2	2 2	2	2	2	2
	Trpts.	16	2 15 16	16 15 16	16	16 15 16 15	1	16
	Troms.	16	14 14 16	16 15 14 16	16	4 16	4 4 4	4
	Tuba	18	18 18	18 18	18	18	18	18
Fiedler	F.Horns	2	2 2	2 2	2	2	2	2
	Trts&Eu.	16	2 15 16	2 15 2	16	16 15 16 15	2	2
	Troms.	16	14 14 16	16 15 15 16	16	4 16	4 4 4	4
	Tuba	18	18 18	18 18	18	18	18	18
Kostelanetz	F.Horns	4	4 4	4 4	4	4	4	4
	Trpts.	16	14 15 16	14 15 16	16	16 15 16 16	16	16
	Troms.	16	12 15 16	16 12 12 16	16	4 16	4 4 4	4
	Tuba	9	9 9	9 9	9	9	9	9
Kunzel	F.Horns	?	?	?	?	?	?	?
	Trpts.	16	12 15 16	12 15 2	16	16 15 16 16	16	16
	Troms.	16	15 15 16	16 15 15 16	16	4 16	16 10 10 10	10
	Tuba	?	?	?	?	?	?	?
Bashford	F.Horns	16	16 16	16 16	16	16	16	16
	Trpts.	16	12 15 2	12 15 2	16	15 15 2 14	2	3
	Troms.	16	12 12 2	15 15 14 14	16	3 9	4 4 4	4
	Tuba	1	1 1	1 1	1	1	1	1
Bashford	F.Horns	?	?	?	?	?	?	?
	Trts&Eu.	16	15 15 16	15 15 2	16	2 15 2 15	2	3
	Troms.	9	9 9 16	9 9 9 16	9	4 16	4 9 9	9
	Tuba	9	9 9	9 9	9	9	9	9

Sousa--continued.

Conductor	Instrument	Measure									
Bachman		39	40	41	42	43	44				
Sousa	F.Horns	?									
	Trts&Eu.	16	16	16	15 15 16	15 15 16				16	15
	Troms.	9 9 9	16 16	16	16 15 15 16	9 9 9	14 14				
	Tuba	16 14	14	4	4 4 4	4 4 4	4 4			4	
Ormandy	F.Horns	?									
	Trts&Eu.	15	16	2	12 15 2	12 15 2				16	15
	Troms	9 9 16	2 16	16	16 14 14 16	4 9 9	2 15				
	Tuba	16 12	12	18	18 18	18 18	18			18	
Kline	F.Horns	2	2	2	2 2	2 2	2			2	
	Trpts.	4 4 16	4 16	16	2 2 16	2 2 16	16 15			16	15
	Troms.	1 12	12	18	16 15 15 16	4 9 9	16 15				
	Tuba	1 12	12	18	18 18	18 18	18			18	
Fiedler	F.Horns	2	2	2	2 2	2 2	2			2	
	Trts&Eu.	2	16	16	2 15 16	16 15 16	16 16			16	15
	Troms.	4 4 16	3 16	16	16 14 14 16	4 4 4	16 16				
	Tuba	16 16	16	18	18 18	18 18	18			18	
Kostelanetz	F.Horns	4	4	4	4 4	4 4	4			4	
	Trpts.	16	16	1	12 15 1	12 15 16	16 15			16	15
	Troms	4 4 4	2 2	15 15 15 16	15 15 15 16	4 4 4	16 14				
	Tuba	9 9 9	9	9	9 9	9 9	9 9			9	
Kunzel	F.Horns	?									
	Trpts.	16	16	16	12 15 16	12 15 16	16 15				
	Troms.	4 4 16	16 14	16	16 14 14 16	2 2 2	2 15				
	Tuba	16 12	12	?							
Bashford	F.Horns	16	16	16	16 16	16 16	16			16	
	Trpts.	16	1	1	16 15 16	12 15 16	1 15				
	Troms.	4 4 16	4 16	16 12 12 2	16 12 12 2	3 4 4	2 14				
	Tuba	16 16	16	1	1 1 1	1 1 1	1 1			1	
Bashford	F.Horns	?									
	Trts&Eu.	2	16	16	15 15 16	15 15 2	16 15			16	15
	Troms.	9 9 4	4 16	9 9 9 16	9 9 9 16	4 9 9	4 2				
	Tuba	16 12	15	9 9	9 9	9 9	9 9			9	

Sousa--continued.

Conductor	Instrument	Measure															
		51	52	53	54	55	56										
Bachman	F.Horns	?	-----														
	Trpts&Eu.	16	16	14	14	10	16	14	14	16							
Sousa	Troms.	?	4	4	4	16	14	14	18	16	14	14	1				
	Tuba	4	4	4	4	4	4	4	4	4	4	4					
	F.Horns	?	-----														
	Trpts&Eu.	16	2	14	14	14	2	14	14	14	2	14	14	2			
	Troms.	15	9	9	18	16	14	14	16	14	14	16	14	16			
Ormandy	Tuba	18	18	18	18	18	18	18	18	18	18	18	18	18			
	F.Horns	2	2	2	2	2	2	2	2	2	2	2	2	2			
	Trpts.	16	16	14	14	18	16	14	14	18	16	14	14	16			
	Troms.	9	9	9	9	16	12	12	12	16	12	12	12	16			
	Troms.	9	9	9	9	16	14	14	18	16	14	18	16	14	16		
Kline	Tuba	18	18	18	18	18	18	18	18	18	18	18	18	18			
	F.Horns	2	2	2	2	2	2	2	2	2	2	2	2	2			
	Trpts&Eu.	2	16	12	12	12	16	12	12	12	16	12	12	16			
	Troms.	9	9	9	9	16	14	14	18	16	14	18	16	14	16		
	Troms.	9	9	9	9	16	14	14	18	16	14	18	16	14	16		
Fiedler	Tuba	18	18	18	18	18	18	18	18	18	18	18	18	18			
	F.Horns	18	18	18	18	18	18	18	18	18	18	18	18	18			
	Trpts.	16	2	12	12	12	2	12	12	12	2	12	12	16			
	Troms.	12	4	4	4	16	14	14	18	16	14	18	16	14	16		
	Troms.	12	4	4	4	16	14	14	18	16	14	18	16	14	16		
Kostelanetz	Tuba	9	9	9	9	9	9	9	9	9	9	9	9	9			
	F.Horns	?	-----														
	Trpts.	16	2	15	15	12	2	15	15	12	2	15	15	16			
Kunzel	Troms.	15	9	9	9	2	14	14	4	2	14	14	4	2	14	14	16
	Troms.	15	9	9	9	2	14	14	4	2	14	14	4	2	14	14	16
	Troms.	15	9	9	9	2	14	14	4	2	14	14	4	2	14	14	16
	Troms.	15	9	9	9	2	14	14	4	2	14	14	4	2	14	14	16
	Troms.	15	9	9	9	2	14	14	4	2	14	14	4	2	14	14	16
Kunzel	Tuba	?	-----														
	F.Horns	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
	Trpts.	2	16	12	12	12	16	12	12	12	16	12	12	16	12	12	16
	Troms.	4	4	4	4	16	14	14	18	16	14	14	18	16	14	14	16
	Troms.	4	4	4	4	16	14	14	18	16	14	14	18	16	14	14	16
Kunzel	Tuba	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Tuba	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Stravinsky--continued.

Conductor	Instrument	R.N. 142, Measure					R.N. 143, Measure					R.N. 144, Measure				
		2	3	4	5		1	2	3	4		5	1	2	3	4
Goosens	Horns	3	3	2	12				3	16	12		9	9	4	4
	Trpts.			3	3	3	3	3	3	3	3	3	9	9	4	4
	Tros&Tuba			4					4				16	16	3	3
				2	12			4	16	12					2	2
Conductor	Instrument	R.N. 144, M.					R.N. 145, Measure					R.N. 146, M.				
		5	12	3	3	3	1	4	4	4	4	2	4	5	6	1
	Horns	12	3	3	3	3	4	4	4	4	4	2	12	2	12	2
	Trpts.	12	3	3	3	3	9	9	9	9	4	1	12	3	3	3
Bernstein	Tros&Tuba	4														3
	Horns	12					11	11	11	11	4	9	3	2	12	
		12	3	3	3	3	11	11	11	11	4	4	3	3	3	4
	Trpts.	12					11	11	11	11	4	4	3	2	12	
De Burgos	Tros&Tuba	4														?
	Horns	12					4	4	4	4	4	5	4	2	12	
		3	3	3	3	3	4	4	4	4	4	3	3	3	3	16
	Trpts.	12					4	4	4	4	4	4	3	2	12	
Ansermet	Tros&Tuba	?														3
	Horns	12					3	3	3	3	3	9	9	2	12	
		12	3	3	3	3	3	3	3	3	3	4	4	3	3	5
	Trpts.	12					3	3	3	3	3	3	2	12		
Stravinsky	Tros&Tuba	?														16
	Horns	--					4	4	4	4	4	10	10	4	1	--
		3	3	3	3	3	4	4	4	4	4	4	4	3	3	3
	Trpts.	--					9	9	9	9	9	4	4	2	--	
Boulez	Tros&Tuba	4														7
	Horns	12					4	4	4	4	4	1	1	4	16	12
		4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
	Trpts.	12					4	4	4	4	4	4	4	1	12	
Goosens	Tros&Tuba	?														7
	Horns	12					4	4	4	4	4	16	16	16	12	
		3	3	3	3	3	4	4	4	4	4	4	4	4	3	3
	Trpts.	12					4	4	4	4	4	10	10	1	12	
Tros&Tuba		?										6	6	4	2	2

Stravinsky--continued.

		R.N. 146, Measure				R.N. 147, Measure				R.N. 148, Measure			
		3	3	3	4	1	2	3	4	5	1	2	3
Conductor	Instrument												
Markevitch	Horns	3	3	3	2	3	3	3	2	3	3	3	3
	Trpts.												
Bernstein	Tro&Tuba				3				3		4	4	4
	Horns	3	3	3	4	3	3	4	4	3	3	3	4
	Trpts.												
	Tro&Tuba				?			?		?	?	?	4
DeBurgos	Horns	3	3	3	3	3	3	7	3	3	3	4	4
	Trpts.												
	Tros&Tuba				3					3		3	4
	Horns	3	3	3	3	3	3	4	3	3	3	4	4
Ansermet	Trpts.												
	Tros&Tuba												
	Horns	3	3	3	16			16	4	4	4	16	4
	Trpts.												
Stravinsky	Tros&Tuba												
	Horns	3	3	3	4	3	3	4	4	3	3	4	4
	Trpts.												
	Tros&Tuba				7			7					
Boulez	Horns	4	4	4	4	4	4	4	4	4	4	7	4
	Trpts.												
	Tros&Tuba												
	Horns	3	3	3	3	3	3	4	4	3	3	10	10
Goosens	Trpts.												
	Tros&Tuba												
	Horns	3	3	3	2			2	4	4	3	10	10
	Trpts.												
	Tros&Tuba												
	Horns												
	Trpts.												
	Tros&Tuba												
	Horns												
	Trpts.												
	Tros&Tuba												
	Horns												
	Trpts.												
	Tros&Tuba												
	Horns												
	Trpts.												
	Tros&Tuba												
	Horns												
	Trpts.												
	Tros&Tuba												
	Horns												
	Trpts.												
	Tros&Tuba												
	Horns												
	Trpts.												
	Tros&Tuba												
	Horns												
	Trpts.												
	Tros&Tuba												
	Horns												
	Trpts.												
	Tros&Tuba												
	Horns												
	Trpts.												
	Tros&Tuba												
	Horns												
	Trpts.												
	Tros&Tuba												
	Horns												
	Trpts.												
	Tros&Tuba												
	Horns												
	Trpts.												
	Tros&Tuba												
	Horns												
	Trpts.												
	Tros&Tuba												
	Horns												
	Trpts.												
	Tros&Tuba												
	Horns												
	Trpts.												
	Tros&Tuba												
	Horns												
	Trpts.												
	Tros&Tuba												
	Horns												
	Trpts.												
	Tros&Tuba												
	Horns												
	Trpts.												
	Tros&Tuba												
	Horns												
	Trpts.												
	Tros&Tuba												
	Horns												
	Trpts.												
	Tros&Tuba												
	Horns												
	Trpts.												
	Tros&Tuba												
	Horns												
	Trpts.												
	Tros&Tuba												
	Horns												
	Trpts.												
	Tros&Tuba												
	Horns												
	Trpts.												
	Tros&Tuba												
	Horns												
	Trpts.												
	Tros&Tuba												
	Horns												
	Trpts.												
	Tros&Tuba												
	Horns												
	Trpts.												
	Tros&Tuba												
	Horns												
	Trpts.												
	Tros&Tuba												
	Horns												
	Trpts.												
	Tros&Tuba												
	Horns												
	Trpts.												
	Tros&Tuba												
	Horns												
	Trpts.												
	Tros&Tuba												
	Horns												
	Trpts.												
	Tros&Tuba												
	Horns												
	Trpts.												
	Tros&Tuba												
	Horns												
	Trpts.												
	Tros&Tuba												
	Horns												
	Trpts.												
	Tros&Tuba												
	Horns												
	Trpts.												
	Tros&Tuba												
	Horns												
	Trpts.												
	Tros&Tuba												
	Horns												
	Trpts.												
	Tros&Tuba												
	Horns												
	Trpts.												
	Tros&Tuba												
	Horns												
	Trpts.												
	Tros&Tuba												
	Horns												
	Trpts.												
	Tros&Tuba												
	Horns												
	Trpts.												
	Tros&Tuba												
	Horns												
	Trpts.												
	Tros&Tuba												
	Horns												
	Trpts.												
	Tros&Tuba												
	Horns												
	Trpts.												
	Tros&Tuba												
	Horns												
	Trpts.												
	Tros&Tuba												
	Horns												
	Trpts.												
	Tros&Tuba												
	Horns												
	Trpts.												
	Tros&Tuba												
	Horns												
	Trpts.												
	Tros&Tuba												
	Horns												
	Trpts.												
	Tros&Tuba												
	Horns												
	Trpts.												
	Tros&Tuba												
	Horns												
	Trpts.												
	Tros&Tuba												
	Horns												

Stravinsky--continued.

Conductor	Instrument	R.N. 150, Measure			R.N. 151, Measure		
Markevitch	Horns	4	5	6	7	1	2
		3 --	3 --	3 --	3 --	3 --	3 --
Bernstein	Troms.						
	Horns	4 --	4 --	4 --	4 --	4 --	4 --
De Burgos	Troms.						
	Horns	3 --	3 --	3 --	3 --	3 --	3 --
Ansermet	Troms.						
	Horns	3 --	3 --	3 --	3 --	3 --	3 --
Stravinsky	Troms.						
	Horns	3 --	3 --	3 --	3 --	3 --	3 --
Boulez	Troms.						
	Horns	4 --	3 --	3 --	4 --	3 --	3 --
Goosens	Troms.						
	Horns	3 --	3 --	3 --	3 --	3 --	3 --
	Troms.						

Conductor	Instrument	R.N. 151, Measure			R.N. 152, Measure		
Markevitch	Horns	4	5	6	7	1	2
		15	3 --		3 --	3 --	3 --
Bernstein	Trpts.	16 16 16	16 16 16	16	16 16 16	16	16
	Troms.	12	4 --		4 --	4 --	4 --
	Horns				4 --	4 --	4 --
	Trpts.	16 16 16	16 16 16	16	16 16 16	16	16
	Troms.	15	3 --		3 --	3 --	3 --
De Burgos	Horns						
	Trpts.						
		6 6 6	6 6 6				

Stravinsky--continued.

Conductor	Instrument	R.N. 151, Measure					R.N. 152, Measure			
		4	5				1	2	3	4
Ansermet	Horns			3 --			3 --	3 --	3 --	3 --
	Trpts.				4 4 4		4 4 4			
	Troms.				9 9 9				2	12
Stravinsky	Horns	9 9 9					3 --	3 --	3 --	3 --
	Trpts.	4		3 --			3 --	3 --	3 --	3 --
	Troms.	16 16 16	16 16 16		16 16 16		16 16 16		2	12
Boulez	Horns	12		3 --			3 --	3 --	3 --	3 --
	Trpts.				9 9 9		9 9 9		2	12
	Troms.	16 16 16	16 16 16				3 --	3 --	3 --	3 --
Goosens	Horns			3 --			3 --	3 --	3 --	3 --
	Trpts.				11 11 11		11 11 11		2	12
	Troms.	9 9 9	9 9 9							

Conductor	Instrument	R.N. 153, Measure					R.N. 155, Measure				R.N. 156, Measure			
		1	2	3	4	5	6	7	2	3	1	2	3	4
Markevitch	Horns	3 -	3 -	3 -	3 -	3 -	3 -	3 -						
	Trpts.								16	16	16	16	16	16
Bernstein	Horns	4 -	4 -	4 -	4 -	4 -	4 -	4 -						
	Trpts.								9	9	9	9	9	9
De Burgos	Horns	3 -	3 -	3 -	3 -	3 -	3 -	3 -						
	Trpts.								9	9	9	9	9	9
Ansermet	Horns	3 -	3 -	3 -	3 -	3 -	3 -	3 -						
	Trpts.								9	9	9	9	9	9
Stravinsky	Horns	3 -	3 -	3 -	3 -	3 -	3 -	3 -						
	Trpts.								9	9	9	9	9	9
Boulez	Horns	3 -	4 -	3 -	3 -	4 -	3 -	3 -						
	Trpts.								4	4	4	4	4	4
Goosens	Horns	3 -	3 -	3 -	3 -	3 -	3 -	3 -						
	Trpts.								9	9	9	9	9	9

R. Wagner Overture to Die Meistersinger
Measures 40-88, Pro-Art Miniature Score(1946)

Conductor	Instrument	Measure 40	41	42	43	44	45
Solti	Horns	18	3	9	9	9	9
	Trpts.	4	3	9	9	9	9
	Troms.	4	4	9	9	9	9
	Tuba		9	9	9	9	9
Szell	Horns		1	1	1	1	1
	Trpts.	18	4	10	10	10	10
	Tros&Tuba	18	4	10	10	10	10
	Horns		9	9	9	9	9
Reiner	Trpts.	3	4	10	10	10	10
	Troms.	18	4	9	9	9	9
	Tuba		10	10	10	10	10
	Horns		10	10	10	10	10
Keilberth	Trpts.	18	3	9	9	9	9
	Troms.	4	4	9	9	9	9
	Tuba		9	9	9	9	9
	Horns		1	1	1	1	1
Ormandy	Trpts.	4	4	16	1	1	1
	Troms.	4	4	1	1	1	1
	Tuba		16	16	16	16	16
	Horns		11	11	11	11	11
Varviso	Trpts.	4	4	9	9	9	9
	Tros&Tuba	4	4	10	10	10	10
	Horns		3	3	3	3	3
	Trpts&Tros.	4	4	4	4	4	4
Stokowski	Horns		10	10	10	10	10
	Trpts.	3	3	16	3	3	3
	Tros&Tuba	4	4	1	9	9	9
	Horns		1	1	1	1	1
Walter	Trpts&Tros.	18	4	10	10	10	10
	Tuba		16	16	16	16	16

Wagner--continued.

Conductor	Instrument	Measure									
Klemperer	Horns	52	11	11	11	53	11	11	11	11	54
	Trpts.	10	10	10	10	10	10	10	10	10	10
	Tros&Tuba	9	9	9	10	10	16	9	9	9	9
Toscanini	Horns	3	3	3	4	4	4	4	4	4	4
	Trpts&Tros.	4	4	4	4	4	4	4	4	4	4
	Tuba	9	9	9							
Hollreiser	Horns	11	11	11	11	11	11	11	11	11	11
	1Trt, Tro, Tu.	4	4	4	18	3	3	9	4	4	4
	2, 3 Trts.	4	4	4	18	3	3	9	4	4	4
Boulez	Horns	3	2	3							
	Trpts	9	9	9	11	4	4	11	9	9	9
	Troms	9	9	9	18	4	4	11	9	9	9
	Tuba	11	11	11							

Conductor	Instrument	Measure									
Solti	Horns	57	9	9	9	58	2	12	16	2	59
	Trpts.	16	16	16	16	2	14	14	14		
	Troms.	9	9	16	16	2	14	14	14		
Szell	3Tro&Tuba	9	9	4	2	3	16	14	15	15	15
	Horns	1	1	1	1	1	1	7	16	2	2
	Trpts.	16	16	16	16	16	14	14	14	14	14
Reiner	Troms.	9	9	9	9	2	14	14	14	14	14
	3Tro&Tuba	9	4	4	2	3	16	16	16	16	16
	Horns	9	9	9	9	9	9	9	9	9	9
Keilberth	Trpts.	9	9	9	9	9	9	9	9	9	9
	Troms.	9	9	9	9	9	9	9	9	9	9
	3Tro&Tuba	10	9	9	16	4	16	16	16	16	16

Wagner--continued.

<u>Conductor</u> Hollreiser	<u>Instructor</u> Horns	<u>Measure</u>									
	11 11	11 11	58	59	60	61	62	63	64	65	66
Trpts	4 4	4 4	2 12	2	2	15 15 14	2	15 16	2	15 16	5
	16	16 16	16 14 18	16	5	16	16	16	16	16	18 18
Troms.	4 4	4 4	16 12 9	16	16	15	2	14 14	2	14 14	3
3Tro&Tuba	4 4	4 4	3 16 12 1	14	14	14 15 15 2 14	15	2 15 4	4	2 15 4	4
Horns	4 4	3 2	14	7	2	2	7	7	7	2	2
Trpts.	9 10	9 9	16 17 14	2	2	15	16	16	16	16	14
Troms.	9 9	9 9	2 16 16	2	2	15	16	16	16	16	9 3
3Tro&Tuba	16 4	4 16	2 2 16 2	14	14	14 14 2 14	14	14 14	14	14 14	14

<u>Conductor</u> Solti	<u>Instrument</u> Horns	<u>Measure</u>									
	63	2	64	65	66	67	68	69	70	71	72
Trpts.	2	16	2 15 15 2	12	15 16 4 4	2	2	2	2	2	2
Troms.	2	15	2	16	2	2	2	2	2	2	2
Tuba	2	15	15	16	2	14 14 3 3 2	15	15	15	15	15
Horns	?	-----	2 2 2 2 2 2	16 2	2 2 2 2 2 2	2	2	2	2	2	2
Trpts.	2	14	15	14 14 14	2	15 15 15	2	2	2	2	2
Troms.	14 14	2	14	15 15 15	15	14 14 14 14 2	15	15	15	15	15
Tuba	2	16	16	15 15 15 15	15	16 16 16 16 16	2	2	2	2	2
Horns	16	2	2	2	2	2	2	2	2	2	2
Trpts	16	2	2	15	9	9 9 16	15	15	15	15	15
Troms.	2 2	2	2	3 2 2	2	16 16 16	2	2	2	2	2
Tuba	16	2	16	15 15 15 12	15	2 15 16 3 3 2	2	2	2	2	2
Horns	16	2	2	2	2	2	2	2	2	2	2
Trpts.	16	14	14	14	2	2	2	2	2	2	2
Troms.	2 14	15	15	14 2 14	2	14 14 14	14	14	14	14	14
Tuba											

Wagner-continued.

Conductor	Instrument	Measure	63	64	65	66	67
Hollreiser	Horns	2	2	2	15 15 15 2	15 2 15 16	3 3 2
	Trpts.	1		5			
	Troms		14	16	15	5	16
	Tuba	2	14	2	15 2 14	18 18	14 14 14
Boulez	Horns	2	2	16	2	14	14
	Trpts.	5		7	2	2	2
	Troms.		14	14	15	9 3	2 15 15
	Tuba	2	14	14	14 14 14	16	14

Conductor	Instrument	Measure	68	69	70	71	72
Solti	Horns	2	2	15 15 15 2	1 16 16	16	15 14 15 15
	Trpts.	2	14	15 15 16	2 15 15 2	2	2 2
	Troms.	15	14	15 14	16 2	2	2 2
Szell	Tuba	2	2	2	15 15 15 2	2 14 15	16 2
	Horns	2	2	15 15 15 2	2 2	2	15 2 15 15
	Trpts.	2	2	15 15 16	2 3 2	2	2 2
	Troms.	14	14	14 2	16 16	16 15	2 2
Reiner	Tuba	16	14	14	14 14	14 14	15 16
	Horns	14	14	14 2	9 2	2	15 14 15 15
	Trpts.	3	16	15 15 2	14 2	2	?
	Troms.	16	2	2 16 15 2	15 15 16 16	2	16 16
	Tuba	2	2	2	3 16	3	16 16
Keilberth	Horns	2	2	2 2	16 2	16 15	1 2
	Trpts.	2	2	15 15 2	2 2	2	15 2 15 15
	Troms.	14	14	14 2	12 15 15 2	2	2 16
	Tuba	2	2	2	2 2	2	2 2
	Horns	2	2	2	2 2	2	14 16
	Trpts.	2	2	2	2 2	2	2 2
	Troms.	14	14	14 2	2 2	2	16 16

Wagner--continued.

Conductor	Instrument	Measure
Ormandy	Horns	68 16 69 16 70 2 71 16 72 15 14 15 15
	Trpts.	16 16 15 15 2 16 2 16 15 16 15 2 16 16 16
	Troms.	16 16 15 15 2 15 14 15 15 14 15 15 14 15 16
	Tuba	16 16 15 15 2 15 14 15 15 14 15 15 14 15 16
Varviso	Horns	14 16 14 2 15 16 16 16 16 16 16 16 16 16 15 16 15 15
	Trpts.	2 16 15 2 2 16 1 1 1 2 2 2 2 2 2 16 14 1
	Troms.	16 16 2 2 15 15 15 15 2 2 2 2 2 2 16 16 16 1
	Tuba	16 16 2 2 15 15 15 15 2 2 2 2 2 2 16 16 16 1
Karajan	Horns.	15 15 15 2 15 2 16 15 14 14 15 15 15 15 16 15 2 15 15
	Trpts.	2 16 15 15 15 2 2 2 2 2 2 2 2 2 2 2 2 2 2
	Troms.	15 15 15 15 2 16 15 15 15 15 15 15 15 15 15 15 15 15
	Tuba	2 16 15 15 15 2 2 2 2 2 2 2 2 2 2 2 2 2 2
Stokowski	Horns	15 15 15 15 2 16 15 16 16 16 16 16 16 16 16 16 16 16
	Trpts.	2 16 15 15 15 2 16 14 2 2 2 2 2 2 2 2 2 2
	Troms.	7 16 15 15 15 2 16 14 2 2 2 2 2 2 2 2 2 2
	Tuba	15 15 15 15 2 16 15 16 16 16 16 16 16 16 16 16 16 16
Walter	Horns	15 14 14 2 14 2 2 2 2 2 2 2 2 2 2 2 2 2
	Trpts.	2 16 15 15 15 16 2 2 2 2 2 2 2 2 2 2 2 2
	Troms.	2 16 15 15 15 16 2 2 2 2 2 2 2 2 2 2 2 2
	Tuba	7 16 15 15 15 16 2 2 2 2 2 2 2 2 2 2 2 2
Klemperer	Horns	14 14 14 16 14 16 14 16 14 16 14 16 14 16 14 16 14 16
	Trpts.	2 16 15 15 15 16 2 2 2 2 2 2 2 2 2 2 2 2
	Troms.	14 14 14 16 14 16 14 16 14 16 14 16 14 16 14 16 14 16
	Tuba	2 16 15 15 15 16 2 2 2 2 2 2 2 2 2 2 2 2

Wagner--continued.

[illegible]

Wagner--continued.

Conductor	Instrument	Measure		85	86	87	88
Solti	Horns	1	1 12 12 7 5	12 16 14 12 5	12 16 14 12 5	12 16 14 12 5	12 16 14 12 5
	Trpts.	16	1 1 14 14 16 12 2	12 12 14 14 15 5	12 12 14 14 15 5	12 12 14 14 15 5	12 12 14 14 15 5
	Troms.	16	15	9 9 9 9 9 9	9 7 9 4 2	9 7 9 4 2	9 7 9 4 2
	Tro&Tuba	16	2 2 12 12 2 12	12 16 12 12 2	12 16 12 12 2	12 16 12 12 2	12 16 12 12 2
Szell	Horns	16	16 16 2 2 16 14 14 16 16 14 7	16 16 14 14 16 16 14 7	16 16 14 14 16 16 14 7	16 16 14 14 16 16 14 7	16 16 14 14 16 16 14 7
	Trpts.	2	2 2	2 2	2 2	2 2	2 2
	Troms.	2	12 2 2 2	2 2 2 2	2 2 2 2	2 2 2 2	2 2 2 2
	Tuba	2	10 16 16 16 16	16 16 16 16 16	16 16 16 16 16	16 16 16 16 16	16 16 16 16 16
Reiner	Horns	16	2 1 15 2 12	12 16 12 15 16	12 16 12 15 16	12 16 12 15 16	12 16 12 15 16
	Trpts.	1	14 14 14 14 ?	-----	-----	-----	-----
	Trpts.	2	2 2	2 2	2 2	2 2	2 2
	Troms.	2	15	16 16 16 16 16	16 16 16 16 16	16 16 16 16 16	16 16 16 16 16
Keilberth	Tuba	16	16 16 12 12 16 12	12 12 16 12 16	12 12 16 12 16	12 12 16 12 16	12 12 16 12 16
	Horns	16	16 14 15 15 16 12 2	12 12 14 14 14 2	12 12 14 14 14 2	12 12 14 14 14 2	12 12 14 14 14 2
	Trpts.	16	16	16	16	16	16
	Trpts.	16	16	16	16	16	16
Ormandy	Troms.	16	15	16 16 16 16 16	16 16 16 16 16	16 16 16 16 16	16 16 16 16 16
	Tuba	16	16 16 14 14 16 12	14 10 16 14 16	14 10 16 14 16	14 10 16 14 16	14 10 16 14 16
	Horns	16	2 14 14 14 14 14 14 14 14 14 14 2	14 14 14 14 14 14 14 14 14 14 14 2	14 14 14 14 14 14 14 14 14 14 14 2	14 14 14 14 14 14 14 14 14 14 14 2	14 14 14 14 14 14 14 14 14 14 14 2
	Trpts.	1	1 16	16	16	16	16
Varviso	Troms.	2	2 2 16 16 16 16	16 16 16 16 16	16 16 16 16 16	16 16 16 16 16	16 16 16 16 16
	Tuba	16	1 16 16 16 2	16 16 16 16 2	16 16 16 16 2	16 16 16 16 2	16 16 16 16 2
	Horns	5	12 12 16 12 2 14 14 14 16 16 14 16	12 12 16 12 2 14 14 14 16 16 14 16	12 12 16 12 2 14 14 14 16 16 14 16	12 12 16 12 2 14 14 14 16 16 14 16	12 12 16 12 2 14 14 14 16 16 14 16
	Trpts.	2	2 2	2 2	2 2	2 2	2 2
	Troms.	16	15	10	10	10	10
	Tuba	7	2 4 4 4 4	4 4 4 4 4	4 4 4 4 4	4 4 4 4 4	4 4 4 4 4
	Trpts.	16	16	16	16	16	16
	Tuba	7	2 4 4 4 4	4 4 4 4 4	4 4 4 4 4	4 4 4 4 4	4 4 4 4 4

APPENDIX D

GUIDE TO INDIVIDUAL COMPOSER ARTICULATION USAGE

As a result of this study's investigation of contemporary composer notational preferences(Chapter Four), a guide to individual composer articulation notations was assembled to give performers the opportunity to discover what composers actually mean when they use articulation notations. The included entries in this guide came from four sources: 1) a composer articulation survey distributed to 72 American composers; 2) a performer survey distributed to the 40 composers who did not respond to the first survey; 3) the book Effective Performance of Band Music by W. Francis McBeth(1972), and 4) a personal interview with Vaclav Nelhybel. The information source for each composer entry has been listed in the guide.

The composer survey included a two-measure musical phrase devoid of articulation notations. Composers were asked to notate the given musical phrase with the articulation marks they would use for 15 written descriptions of articulations. The performer survey(in this case used by composers) took the most popular responses for each example in the composer survey and offered the performer(or composer) a choice of up to six notation for each articulation description. Composers were told that they could change any notation to meet their conceptions for any description. The McBeth book asked conductors to define five articulation notations.

This guide to composer articulation usage had the following limitations: 1) It only included a selected group of American composers; and 2) it is possible that composers may use some notations which are not included in the guide. The guide included only notations demonstrated by each composer.

Thomas Albert. Associate Professor of music theory, composition, and chairman of theory division, Shenandoah Conservatory of Music, Virginia(Composer Survey).



Notes receive full value(with a minimum of space between notes), without loud attacks and quick decrescendos.



Notes shortened in value(each separated from the next), without loud attacks.



Notes receive full value, with each note stressed or leaned upon(perhaps with each note receiving a slight crescendo).



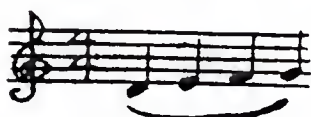
Notes shortened in value(each separated from the next), with loud attacks.



Notes shortened in value receiving very loud attacks, with either a slight or a quick diminuendo.



Notes receive full value with no separation, receiving diaphragmatic stress, rather than articulated accents.



Notes are one flow of sound with no breaks between them.



Notes receive full value, with very loud attacks, with quick and large diminuendos.



Notes receive full value(with each note barely separated from the next), with loud attacks and quick decrescendos

Bruno Amato. Theory faculty, Peabody Conservatory of Music, Baltimore, Maryland(Performer Survey).



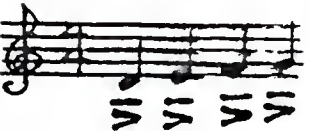
Notes receive full value, with notes louder than normal within the prevailing dynamic(notes accented for the whole of their duration).



Notes shortened in value(each separated from the next), without loud attacks.



Notes receive full value(with a minimum of space between notes), without loud attacks.



Notes receive full value(with each note barely separated from the next), with loud attacks and quick decrescendos.



Notes shortened in value(each separated from the next), with loud attacks or with very loud attacks and only slight diminuendos.



Notes receive some separation and diaphragmatic stress, rather than articulated accents.



Notes are slightly separated, receiving forceful attacks with slight decays.



Notes receive full value, with very loud attacks, with quick and large diminuendos.



Notes are shortened in value, with very loud attacks and quick diminuendos.



Notes are one flow of sound, with no breaks between them.

David Amram. Composer, New York, New York (Performer Survey).



Notes receive full value (with a minimum of space between notes), without loud attacks; notes may receive diaphragmatic stress, or be one flow of sound with no breaks between them.



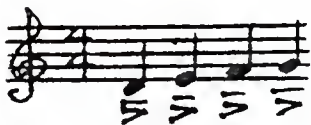
Notes receive full value (with each note barely separated from the next), with loud attacks and quick decrescendos; or full value notes louder than normal within the prevailing dynamic.



Notes shortened in value (each separated from the next), without loud attacks.



Notes shortened in value (each separated from the next), with either loud attacks or very loud attacks, with only a slight diminuendo.



Notes receive slight separation, with each note stressed or leaned on (a very slight crescendo on each note).



Notes are slightly separated, receiving forceful attacks with slight decays.



Notes are shortened in value, with very loud attacks and quick diminuendos.

Jan Bach. Professor, Northern Illinois University (Composer Survey)



Notes receive full value with loud or very loud attacks and quick decrescendos; and notes are louder than in the prevailing dynamic.



Notes shortened in value (each separated from the next), without loud attacks.

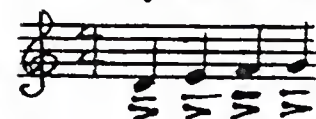


Long notes, but slightly spaced.



Notes shortened in value (each separated from the next), with loud, or with very loud attacks.

or



Notes are slightly separated, receiving forceful attacks or diaphragmatic stress, with slight decays.



Notes are one flow of sound, with no breaks between them.



Notes receive full value with no separation, receiving diaphragmatic stress, rather than articulated accents.




Notes are a flow of sound with the beginning of each note just barely articulated.

Comments:

1. Some of [the survey's] distinctions are so subtle I doubt that many composers (especially those with no brass background) think of notating them. Life is too short; context and musicality (especially an understanding of style) are more important than rote symbols for articulations.
2. The articulation vocabulary is at present too limited. Other than \vee , $>$, \cdot , $-$, and \smile , what symbols do we have?
3. Articulations would be much easier to express if the unadorned note (\bullet) were taught to be played for its full value, and any articulation (except the slur) used to

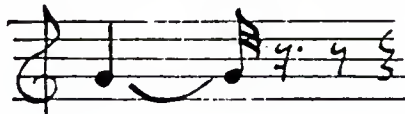
shorten or accent the note.

4. To my mind,  is the most misunderstood articulation, even among professional performers and conductors. Some take it to mean "play the note as long as possible within its duration" while others interpret it as "long notes, but slightly spaced." I take it to generally mean the latter, but wish it meant the former.

5. I have had more trouble with this articulation in my own music more than any other:



I mean to have one G articulated at the beginning of the quarter-note, and tied over to an extremely short second note; a simplified way of writing:



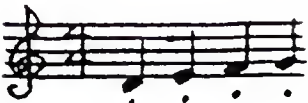
However, many players insist on articulating the staccato eighth-note as well as the quarter-note, and I have to remind them that, were I to ask for such an articulation, I would write it as:



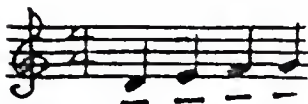
Andrew Balent. Composer and arranger of band literature
(Composer Survey)



Notes are slightly separated, receiving forceful attacks with slight decays.



Notes shortened in value (each separated from the next), without loud attacks.



Notes receive full value (with a minimum of space between notes), without loud attacks.



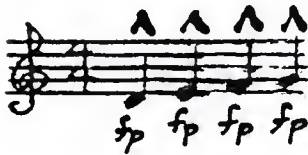
Notes shortened in value, receiving very loud attacks, with only slight diminuendos.



Notes shortened in value (each separated from the next), with loud attacks.



Notes receive full value (with each note barely separated from the next), with loud attacks and quick decrescendos.



Notes are played with very loud attacks and quick diminuendos.



Notes receive full value with no separation, either receiving diaphragmatic stress or with the beginning of each note barely articulated.



Notes receive some separation and diaphragmatic stress, rather than articulated accents.



Notes are one flow of sound, with no breaks between them.

Comments:

In some cases it would be wise to write performance notes with the piece to describe your exact intentions. Many are difficult to indicate exactly with traditional markings.

Warren Barker, Composer, Red Bluff, California
(Composer Survey,



Notes shortened in value (each separated from the next), without loud attacks.



Notes receive full value (with a minimum of space between notes), without loud attacks.



Notes receive full value, with notes louder than normal within the prevailing dynamic (notes accented for the whole of their duration).



Notes receive full value, with each note stressed or leaned upon, with the beginning of each note barely articulated.



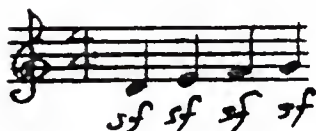
Notes are one flow of sound, with no breaks between them.



Longer notes (quarter-notes or longer) receive forceful attacks (in conjunction with an increase of dynamic marking).



Shorter notes (shorter than a quarter-note) receive forceful attacks (in conjunction with an increase of dynamic marking) and are shortened in value.



Notes receive very large attack (without quick diminuendo unless notated).

James Barnes. Composer and arranger, University of Kansas (Composer Survey)



Notes receive full value (with a minimum of space between notes), without loud attacks.



Notes receive full value (with each note barely separated from the next), with loud attacks and quick decrescendos.



Used to separate or detach short notes (eighth or sixteenth-notes).



Notes detached, receiving very loud attacks, with only slight diminuendos.



Notes are shortened in value, with very loud attacks and quick diminuendos.



Notes are a flow of sound with the beginning of each note just barely articulated (for longer notes--quarters, halves).



Notes are a flow of sound with the beginning of each note just barely articulated (for shorter notes--eighths and sixteenths).

Comments:

The following comments and discussions are taken, with permission, from Barnes' unpublished monograph "Emphasis On Concert Band" (undated).

Specific names for articulations and their implication.

<u>Articulation</u>	<u>Italian name</u>	<u>It. trans.</u>	<u>Musical Implication</u>
> or <i>sf</i>	sfort	forced, pushed	emphasized
^	marcato	marked	heavily emphasized
.	staccato	detached (lightly)	lightly detached
!	spiccato	forcefully detached	detached with strong emphasis
—	tenuto	held, grasped	drawn to full value

Basic interpretations of standard articulations.



heavy emphasis, sometimes with a slight separation before next note, sometimes played full value, especially in note values of half note or larger



full value(sometimes a slight separation), moderate emphasis

full value; no separation to the next note



lightly tongued; more than usual separation



briskly tongued; even more separation than staccato(rarely used in more contemporary scores)

Wind player combinations of traditional bowing marks.



tongued lightly and played to full value with no break between this note and next



emphasized and played to full value with no break between this note and next



emphasized heavily and played quite detached(I personally don't care for this marking, since it leaves little time for a good tone--especially in 8th-note usage--and therefore it seems a bit unmusical).

Combinations of slurs and articulations.



lightly tongued with no break in air column(which is the way staccato should be played anyway)



tenuto, with no break in the air column this marking seems to be redundant)

Articulation and the length of the note.

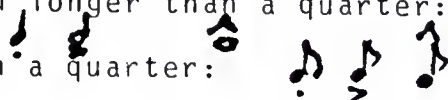


has to do with length as well as impulse



all these markings have more to do with the emphasis of the note rather than the duration of the pitch, especially when we're considering notes of any duration longer than a quarter:

or shorter than a quarter:



Remember that all these articulations must be taken in the context of style. One formula just won't work, because there are so many different styles of music today. For example: a marcato quarter note in jazz doesn't necessarily mean the same thing in a Romantic work of Wagner; nor can it be interpreted in the same manner in a contemporary work of a serious Concert Band composer. (p.4)

Rule Beasley. Professor, Santa Monica College, California
(Completed both Composer and Performer Survey)



Notes are slightly separated, receiving forceful attacks with slight decays.



Notes receive full value (with a minimum of space between notes), without loud attacks.



Notes shortened in value (each separated from the next), without loud attacks.



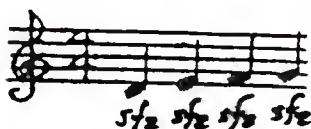
Notes shortened in value (each separated from the next), with loud attacks.



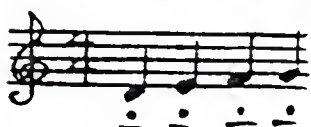
Notes receive full value, with notes louder than normal within the prevailing dynamic (notes accented for the whole of their duration).



Notes shortened in value, receiving very loud attacks, with quick and large diminuendos.



Notes receive very loud attacks and quick diminuendos.



Notes are a flow of sound with the beginning of each note just barely articulated.



or



Notes receive full value with no separation, with each note stressed, rather than the use of articulated accents.

Notes are one flow of sound, with no breaks between them.

Frank Bencriscutto. Professor, University of Minnesota
(Performer Survey).



Notes shortened in value(each separated from the next), without loud attacks.



Notes receive full value, with each note stressed or leaned upon(perhaps with each note receiving a slight crescendo).



Notes shortened in value, without loud attack, but possibly with some stress placed upon them.



Notes shortened in value, with either loud or very loud attacks.

or



or



Notes receive full value, with notes louder than normal within the prevailing dynamic(notes accented for the whole of their duration).



Notes receive full value with no separation, receiving diaphragmatic stress, rather than articulated accents.

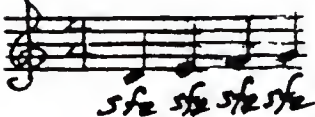


Notes are one flow of sound, with no breaks between them.



Notes receive full value (with each note barely separated from the next), with loud attack and quick decrescendos.

or



Notes are shortened in value, with very loud attacks and quick diminuendos.



Notes receive full value, with very loud attacks and quick diminuendos.

Warren Benson. Professor of composition, Eastman School of Music, Rochester, New York (Performer Survey)



Notes shortened in value (each separated from the next), without loud attacks.



Notes shortened in value, with loud attacks.



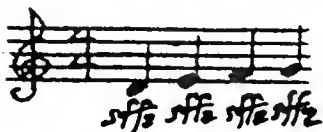
Notes receive full value with no separation, receiving diaphragmatic stress, rather than articulated accents.



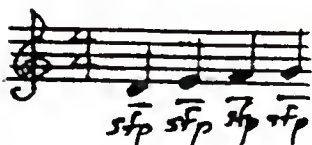
Notes receive some separation and diaphragmatic stress, rather than articulated accents.



Notes receive full value (with each note barely separated from the next), with loud attacks and quick decrescendos



Notes shortened in value, receiving very loud attacks, with only slight diminuendos.



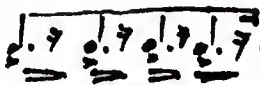
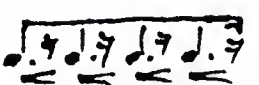
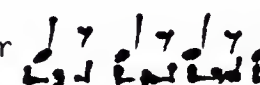

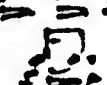
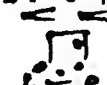
Notes receive full value, with very loud attacks, with quick and large diminuendos.



Notes are shortened in value, with very loud attacks and quick diminuendos.

Comments:

[The survey] assumes all notes have to be quarter-notes.

Why not  or  or 
or  or  or  sim.

I think your notation choice is much too limited. You can't do it all with quarter-notes at 84, or at any speed.

Richard Bowles. Retired Professor of music, University of Florida (Composer Survey)



Notes shortened in value (each separated from the next), without loud attacks.



Notes receive full value (with a minimum of space between notes), without loud attacks.



Notes shortened in value, receiving very loud attacks, with only slight diminuendos.



Notes shortened in value, with loud attacks.



Notes receive some separation and diaphragmatic stress, rather than articulated accents.



Notes are a flow of sound, with the beginning of each note just barely articulated.



Notes are just one flow of sound with no breaks between them.



Notes receive full value, with very loud attacks and quick and large diminuendos.



Notes are slightly separated with loud attacks.

Comments:

Some of the articulation possibilities are better served by "legato" or "marcato" than by individual markings on each tone. Too many markings are as confusing as none, sometimes.

Charles Carter. Instructor, Florida State University
(Performer Survey)



Notes are slightly separated, receiving forceful attacks with slight decays.



Notes shortened in value (each separated from the next), without loud attacks.



Notes receive some separation and diaphragmatic stress, rather than articulated accents.



Notes shortened in value (each separated from the next), with loud attacks.



Notes receive full value, with notes louder than normal within the prevailing dynamic (notes accented for the whole of their duration).



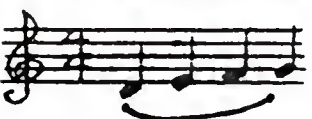
Notes are shortened in value, with very loud attacks and quick diminuendos.



Notes receive full value with no separation, receiving diaphragmatic stress or just barely articulated.



Notes shortened in value, receiving very loud attacks, with only slight diminuendos.



Notes are one flow of sound with no breaks between them.

Comments:

During my playing days, I played both trombone and baritone horn. It is my opinion that there is a difference between a slide instrument and a valve instrument. This difference is reflected in my writing. I feel there are different procedures in marking articulation between the two instruments.

John Barnes Chance. Professor of composition, University of Kentucky (McBeth Book).



Notes receive full value, each given a hard attack.



Notes are as legato as possible with each note attacked without accent (soft-tongued).



Each note is shortened in value, separated from the next.



Notes should be projected dynamically above its surrounding by accenting it for the whole of its duration.

Elliot Del Borgo. Professor of music, State University of New York at Potsdam (Composer Survey).



Notes receive full value (with a minimum of space between notes), without loud attacks.



Notes shortened in value (each separated from the next), without loud attacks.



Notes receive full value, with very loud attacks, with quick and large diminuendos.



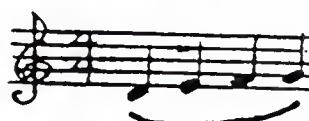
Notes receive slight or some separation, with each note stressed or leaned upon (a very slight crescendo on each note).



Notes are shortened in value, with very loud attacks and quick diminuendos.



Notes are a flow of sound with the beginning of each note barely articulated.

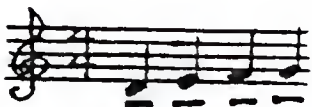


Notes are one flow of sound, with no breaks between them.

Norman Dello Joio. Pulitzer Prize winning composer
(Performer Survey).



Notes receive full value (with a minimum of space between notes), without loud attacks.



Notes receive full value, with each note stressed or leaned upon (perhaps with each note receiving a slight crescendo).



Notes shortened in value, without loud attacks.



Notes shortened in value receiving either loud or very loud attacks, with only slight diminuendos.



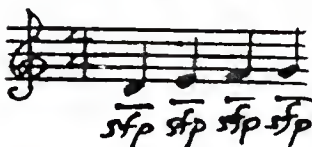
Notes receive full value, with notes louder than normal within the prevailing dynamic (notes accented for the whole of their duration).



Notes are slightly separated, receiving forceful attacks with slight decays.



Notes receive full value (with each note barely separated from the next), with loud attacks and quick decrescendos.



Notes receive very loud attacks, with quick and large diminuendos.



Notes receive full value, either as a flow of sound, or with notes receiving only diaphragmatic stress.



Notes receive very little separation, either barely articulated or with diaphragmatic stress.

David Del Tredici. Professor of music, City College of the City University of New York(Performer Survey).



Notes receive full value(with a minimum of space between notes), without loud attacks.



Notes shortened in value(each separated from the next), without loud attacks.



Notes shortened in value(each separated from the next), with loud attacks.



Notes receive full value, or slightly separated, with notes louder than normal within the prevailing dynamic(notes accented for the whole of their duration).



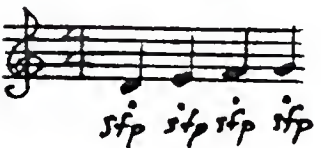
Notes receive full value(with each note barely separated from the next), with loud attacks and quick decrescendos.



Notes shortened in value, receiving very loud attacks, with only slight diminuendos.



Notes receive full value, with very loud attacks, with quick and large diminuendos.



Notes are shortened in value, with very loud attacks and quick diminuendos



Notes receive full value with no separation, notes begun by diaphragmatic stress or just barely articulated.



Notes receive some separation and diaphragmatic stress, rather than articulated accents.



Notes are one flow of sound, with no breaks between them.

Comments:

Most confusing, in my experience, is to get players to do an articulated but basically connected legato kind of playing. Notation for this seems inadequate.

John Edmondson. Free-lance composer, arranger, and editor(Composer Survey)



Notes receive full value(with each note barely separated from the next), with loud attacks and quick decrescendos.



Notes shortened in value(each separated from the next), without loud attacks.



Notes are a flow of sound with the beginning of each note just barely articulated.



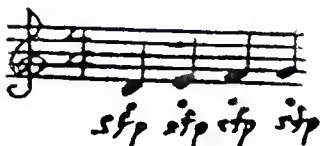
Notes shortened in value(each separated from the next), without loud attacks.



Notes must be played full value and not separated noticeably from the next one.



Notes shortened in value, receiving very loud attacks, with only slight diminuendos.



Notes are shortened in value, with very loud attacks and quick diminuendos.



Notes are one flow of sound, with no breaks between them.

Frank Erickson. Composer of concert band music(Composer Survey)



Notes receive full value, with each note stressed or leaned upon.



Notes receive full value(with each note barely separated from the next), with louder attacks than in the prevailing dynamic.



Notes receive full value, without loud attacks.



Notes shortened in value receiving very loud attacks.



Notes receive full value, with very loud attacks.



Notes are a flow of sound with the beginning of each note just barely articulated.



Notes are one flow of sound, with no breaks between them.






Notes receive an "extra-strong" accent.




Short, extra-heavy notes.

Comments:

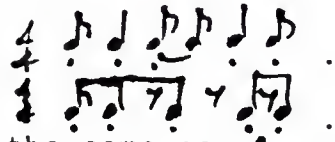
At this tempo[quarter-note=84], I don't think a cresc or decresc is really practical for any value less than

a half-note ( or ). I have seldom used  as an accent but, on the few occasions I have, I usually mean it to be an "extra-strong" accent. In general I would say that

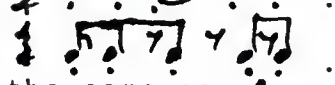
 would be equivalent to 


 would be a short, extra heavy note.

I never tie a short note into a strong beat such as

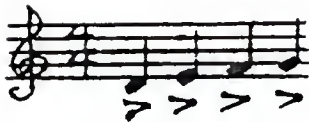


I would notate this as



I also feel that sfz is about the same as  and except for transcriptions where the original composer used it, I never have (again, sfz just an extra-heavy accent).

Arthur Frackenpohl. Professor, State University of New York at Potsdam (Composer Survey).



Notes receive full value, with notes louder than normal within the prevailing dynamic.



Notes shortened in value (each separated from the next), without loud attacks.



Notes shortened in value (each separated from the next), with loud attacks.



Notes shortened in value, receiving very loud attacks, with only slight diminuendos.



Notes receive full value (with each note barely separated from the next), without loud attacks.



Notes receive full value (with each note barely separated from the next), with loud attacks and quick decrescendos.

Morton Gould. Composer and conductor(Composer Survey).



Notes receive full value(with each note barely separated from the next), with loud attacks and quick decrescendos.



Notes receive full value(with a minimum of space between notes), without loud attacks.



Notes shortened in value(each separated from the next), without loud attacks.



Notes shortened in value(each separated from the next), with loud attacks.

Clare Grundman. Composer and orchestrator(Performer Survey)



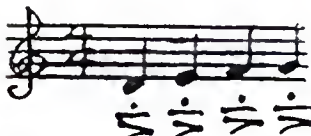
Notes are a flow of sound(receive full value), with the beginning of each note just barely articulated and with each note slightly stressed.



Notes shortened in value with loud or very loud attacks.



Notes receive full value, with notes louder than normal within the prevailing dynamic(notes accented for the whole of their duration).



Notes are slightly separated, receiving forceful attacks with slight decays.



Notes receive full value(with each note barely separated from the next), with loud attacks and quick decrescendos.



Notes receive some separation and diaphragmatic stress, rather than articulated accents.



Notes receive full value with no separation, receiving diaphragmatic stress, rather than articulated accents.



Notes are one flow of sound, with no breaks between them.

Bill Hammond. Chief editor, Kendor Music Publications (Composer Survey).



Notes receive full value (with a minimum of space between notes), without loud attacks.



Notes receive nearly full value, receiving forceful attacks with slight decays.



Notes shortened in value (each separated from the next), without loud attacks.



Notes shortened in value, receiving very loud attacks.



Notes shortened in value (each separated from the next), with loud attacks.



Notes receive full value, with notes louder than normal within the prevailing dynamic (notes accented for the whole of their duration).



Notes receive full value, with very loud attacks, with quick and large diminuendos.



Notes are one flow of sound, with no breaks between them.



Notes receive slight or some separation, with each note stressed or lean on (a slight crescendo on each note).

Walter Hartley. Professor, State University College of New York at Fredonia(Composer Survey).



Notes receive full value(with a minimum of space between notes), without loud attacks.



Notes receive full value(with each note barely separated from the next), with loud attacks and quick decrescendos (only used when dynamic is f or ff).



Notes shortened in value(each separated from the next), without loud attacks.



Notes shortened in value with loud attacks(only used when dynamic is f or louder).



Notes are a flow of sound with the beginning of each note just barely articulated.



Notes are one flow of sound, with no breaks between them

Q.C. Hilliard. Professor, Nichols State University, Thibodaux, Louisiana(Composer Survey)



Notes receive full value(with a minimum of space between notes), without loud attacks.



Notes receive full value (with each note barely separated from the next), with loud attacks and quick decrescendos.



Notes shortened in value (separated from the next), without loud attacks.



Notes are slightly separated, receiving forceful attacks with slight decays.



Notes shortened in value, receiving very loud attacks, with only slight diminuendos.



Notes shortened in value, with loud attacks.



Notes receive full value, with very loud attacks and quick and large diminuendos.



Notes are slightly separated, receiving forceful attacks with slight decays.



Notes are shortened in value, with very loud attacks and quick diminuendos.



Notes receive some separation and diaphragmatic stress, rather than articulated accents.



Notes are a flow of sound with the beginning of each note just barely articulated.



Notes are one flow of sound, with no breaks between them.

Karel Husa. Kappa Alpha Professorship, Cornell University, Ithaca, New York (Composer Survey).



Notes receive full value (with each note barely separated from the next), with loud attacks.



Notes receive some separation and diaphragmatic stress, rather than articulated accents.



Notes shortened in value (each separated from the next), without loud attacks.



Notes receive full value, with notes louder than normal within the prevailing dynamic (notes accented for the whole of their duration).



Notes shortened in value, with very loud attacks, with quick and large diminuendos (when dynamic is at least *f*).



Notes shortened in value, with loud attacks.



Notes shortened in value, with very loud attacks.



Notes receive full value, with no separation, receiving diaphragmatic stress, rather than articulated accents.



Notes are on flow of sound, with no breaks between them.

William Kraft. Composer-in-residence, Los Angeles Philharmonic, 1981-1984(Performer Survey).



Notes receive full value(with a minimum of space between notes), without loud attacks.



Notes shortened in value(each separated from the next), without loud attacks.



Notes shortened in value, with loud attacks.



Notes receive full value with no space between notes.

Martin Mailman. Professor of composition, North Texas State University(McBeth Book).



Notes given a clear separation, with a forceful attack and little separation between each attack.



Notes held full value, with very little separation between notes, with a broad attack, sometimes with notes stressed.



Notes are shortened. In many cases it approximates a resonant pizzicato in the strings.



Notes are given a "bell-like" attack, with considerable decay and marked separation between sounds.

Donald McGinnis. Composer, author, and producer(Performer Survey).



Notes receive full value(with each note barely separated from the next), with loud attacks and quick decrescendos.



Notes shortened in value(each separated from the next), without loud attacks.



Notes shortened in value(each separated from the next), with loud attacks.



Notes receive full value, with notes louder than normal within the prevailing dynamic(notes accented for the whole of their duration).



Notes are slightly separated, receiving forceful attacks with slight decays.



Notes receive full value with no separation, each note receiving diaphragmatic stress rather than articulated accents.



Notes receive full value, with very loud attacks, with quick and large diminuendos.



Notes are shortened in value, with very loud attacks and quick diminuendos.



Notes receive some separation and diaphragmatic stress, rather than articulated accents.



Notes are one flow of sound, with no breaks between them.

Vaclav Nelhybel. Lecturer, composer, and guest conductor
(Personal Interview).



Notes are shortened(a break between notes). The beginning of each note is emphasized with a "tah" tongue, followed by a diminuendo.



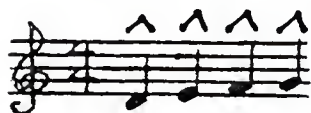
Note values are shortened.



Notes are full value with a very slight break between them, with notes receiving a "du" tongue.



A continuous flow of sound with an air pulse.



Notes are shortened, receiving very strong attacks, with large diminuendos (bell-tones).



Notes are slightly shortened, with one note leading to another in a flow of breath.



Notes are full value, with a loud but not hard attack(da), followed by a diminuendo.



Notes are full value, with a loud and hard attack(ta), followed by a diminuendo.



Notes are slightly shortened, with a loud attack and no diminuendo(the volume of the note is steady).

Comments:

Accents at the end of a crescendo ask for an extra push of air (or breath attack, like pushing the bow bow at the end of an attack:



Roger Nixon. Professor of music, San Francisco State University (Composer Survey).



Notes receive full value (with each note barely separated from the next), with loud attacks and quick decrescendos.



Notes shortened in value (each separated from the next), without loud attacks.



Notes receive full value, with no accents (possibly receiving stress).



Notes receive full value with very loud attacks.



Notes are shortened in value, with very loud attacks.



Notes receive full value, are played as a flow of sound, and are either barely articulated or receive diaphragmatic stress.



Notes are one flow of sound, with no breaks between them.

John O'Reilly. Music editor and composer (Composer Survey)



Notes receive full value (with a minimum of space between notes), without loud attacks.



Notes either stressed or given a loud attack.



Notes shortened in value (each separated from the next), without loud attacks.



Notes are shortened in value, with very loud attacks and quick diminuendos.



Notes are slightly separated, receiving forceful attacks with slight decays.



Notes are a flow of sound with the beginning of each note just barely articulated.



Notes are a flow of sound, with no breaks between them.

Vincent Persichetti. Composition faculty, Juilliard School, New York, New York (Performer Survey).



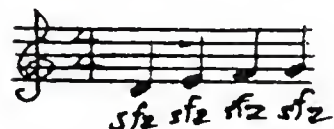
Notes receive full value (with a minimum of space between notes), without loud attacks.



Notes shortened in value (each separated from the next), with loud or very loud attacks, with only slight diminuendos.



Notes receive full value (with each note barely separated from the next), with loud attacks and quick decrescendos.



Notes are slightly separated, receiving forceful attacks with slight decays.



Notes are shortened in value, with very loud attacks and quick decrescendos.



Notes receive full value, with notes just barely articulated or started by diaphragmatic stress.



Notes receive some separation and diaphragmatic stress, rather than articulated accents.



Notes are a flow of sound, with no breaks between them.

James Ployhar.
ser Survey).

School educator and band composer (Compo-



Notes receive full value (with a minimum of space between notes), without loud attacks.



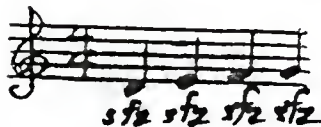
Notes shortened in value (each separated from the next), without loud attacks.



Notes receive full value (with each note barely separated from the next), with loud attacks and quick decrescendos.



Notes shortened in value, receiving very loud attacks with only slight diminuendos.



Notes receive full value, with very loud attacks, with quick and large diminuendos.



Notes are shortened in value, with very loud attacks and quick diminuendos.



Notes receive full value with no separation, receiving diaphragmatic stress rather than articulated accents.



Notes are a flow of sound with the beginning of each note just barely articulated.



Notes are one flow of sound, with no breaks between them.

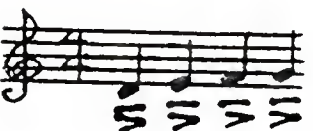
.. Reid Poole. Professor, University of Florida(Composer Survey).



Notes shortened in value(each separated from the next), without loud attacks.



Notes are barely articulated, or receive diaphragmatic stress.



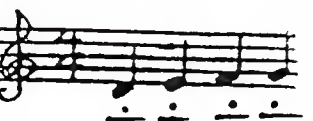
Notes receive full value(with a minimum of space between notes), without loud attacks.



Notes receive full value, with notes louder than normal within the prevailing dynamic(notes accented for the whole of their duration).



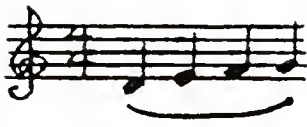
Notes are shortened in value, with either loud or very loud attacks and quick diminuendos.



Notes receive slight separation, with each note stressed or leaned on(a very slight crescendo on each note).



Notes receive full value with no separation, receiving diaphragmatic stress rather than articulated accents.



Notes are one flow of sound, with no breaks between them.

William Presser. Composer, retired professor, University of Southern Mississippi (Composer Survey)



Notes receive full value (with a minimum of space between notes), without loud attacks.



Notes receive full value (with each note barely separated from the next), with loud attacks and quick decrescendos.



Notes shortened in value (each separated from the next), without loud attacks.



Notes are one flow of sound with no breaks between them.

Comments:

I use a minimum of articulation marks, mostly •, >, never — (tenuto -- means too many different things), never ^, never sf or fz or sfz (not many players know the difference). I don't use "modern" articulation signs, since I write conservative music.

I use fp rarely, because so many players regard it as an accent mark rather than a dynamic sign. Even Beethoven follows ff by fp. Surely he meant ffp.

Alfred Reed. Professor of music, University of Miami (Composer Survey).



Notes receive full value (with a minimum of space between notes), without loud attacks.



Notes very slightly separated, with loud attacks and notes stressed.



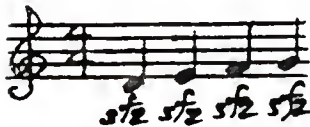
Notes shortened in value (each separated from the next), without loud attacks.



Notes receive full value with the breath constant, with the tongue "inserted" to create "broad" attack ("da" not "ta").



Notes slightly separated, receiving forceful attacks and slight decays.



Notes receive full value, with notes louder than normal within the prevailing dynamic (notes accented for the whole of their duration).



Notes shortened in value, receiving very loud attacks with only slight diminuendos.



Notes are shortened in value, with very loud attacks and quick diminuendos.



Notes are a flow of sound with the beginning of each note barely articulated (the "smoothest" possible attack before a true slur).



Notes are one flow of sound, with no breaks between them (a true slur).

Verne Reynolds. Professor, Eastman School of Music, Rochester, New York (Performer Survey).



Notes receive full value (with a minimum of space between notes), without loud attacks.



Notes receive full value (with each note barely separated from the next), with loud attacks and quick decrescendos.



Notes shortened in value (each separated from the next), without loud attacks.



Notes are shortened in value, with very loud attacks and quick diminuendos.



Notes receive some separation and diaphragmatic stress, rather than articulated accents.



Notes receive full value with no separation, receiving diaphragmatic stress, rather than articulated accents.



Notes are one flow of sound, with no breaks between them.

Harold Schiffman. Professor of composition (Emeritus),
Florida State University (Performer Survey).



Notes receive full value (with a minimum of space between notes), without loud attacks.



Notes shortened in value (each separated from the next), without loud attacks.



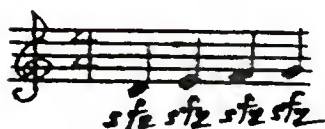
Notes shortened in value, receiving forceful attacks with slight decays.



Notes shortened in value, receiving very strong attacks.



Notes receive slight or some separation, with each note stressed or leaned on (a very slight crescendo on each note).



Notes receive full value (with each note barely separated from the next), with loud or very loud attacks and with quick and large diminuendos.



Notes receive full value with no separation, receiving diaphragmatic stress rather than articulated accents.



Notes receive some separation and diaphragmatic stress, rather than articulated accents.



Notes are one flow of sound, with no breaks between them.

Jared Spears. Professor of composition, Arkansas State University (Composer Survey).



Notes receive full value, with no break in the air column, without loud attacks.



Notes receive full value (with each note barely separated from the next), with loud attacks and quick decrescendos.



Notes shortened in value (each separated from the next), without loud attacks.



Notes receive full value, with each note stressed or leaned upon (perhaps with each note receiving a slight crescendo).



Notes are slightly separated, receiving forceful attacks with slight decays.



Notes are shortened in value, with very loud attacks and quick diminuendos.



Notes receive full value, with very loud attacks and with quick an large diminuendos.



Notes are a flow of sound with the beginning of each note just barely articulated.



Notes are one flow of sound, with no breaks between them.

Edward Troupin.
(ser Survey).

Professor, University of Florida(Compo-



Notes receive full value(with each note barely separated from the next), with loud attacks and quick decrescendos.



Notes shortened in value(each separated from the next), without loud attacks.



Notes receive full value(with a minimum of space between notes), without loud attacks.



Notes shortened in value, with loud attacks.



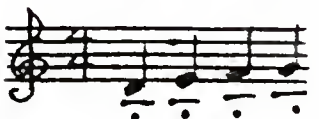
Notes are shortened in value, receiving very loud attacks.



Notes receive full value with very loud attacks, with quick and large diminuendos.



Notes are slightly separated, receiving forceful attacks with slight decays.



Notes receive some separation and diaphragmatic stress, rather than articulated accents.



Notes receive slight or some separation, with each note stressed or leaned upon.



Notes are one flow of sound, with no breaks between them.

Comments:

In general:

dots → space before following note

dashes → full length and $\frac{1}{2}$ accent

accents →

I hate the thing from brass players!

sfz → stronger accent than >, and probably less

diminuendo

^ → a confusing marking to be avoided

Fisher Tull. Chairman, Department of Music, Sam Houston State University(Composer Survey).



Notes receive full value(with some space between notes), without loud attacks, with each note stressed.



Notes shortened in value(each separated from the next), without loud attacks.



Notes shortened in value(each separated from the next), with loud attacks.



Notes are shortened in value, receiving very loud attacks.



Notes receive full value, notes louder than normal within the prevailing dynamic (accented for the whole of their duration).



Notes are slightly separated, receiving forceful attacks with slight decays.



Notes are a flow of sound with the beginning of each note either barely articulated or receiving diaphragmatic stress.



Notes receive separation and diaphragmatic stress, rather than articulated accents.



Notes are one flow of sound, with no breaks between them.

David Uber. Professor of music, Trenton State College, New Jersey (Composer Survey)



Notes receive full value (with a minimum of space between notes), without loud attacks, with each note stressed.



Notes receive full value (with each note barely separated from the next), with loud attacks and quick decrescendos.



Notes shortened in value (each separated from the next), without loud attacks, possibly using diaphragmatic stress.



Notes shortened in value, with very loud attacks and slight decays.



Notes are shortened in value, with very loud attacks and quick diminuendos.



Notes are one flow of sound, with no breaks between them.

Budd Udell. Professor, University of Florida(Composer Survey).



Notes receive full value(with a minimum of space between notes), without loud attacks.



Notes receive full value(with each note barely separated from the next), with loud attacks and quick decrescendos.



Notes shortened in value(each separated from the next), without loud attacks.



Notes receive full value, with each note stressed or leaned upon(each note receiving a slight crescendo).



Notes receive slight separation, with each note stressed or leaned upon.



Notes shortened in value, receiving very loud attacks, with only slight diminuendos.



Notes receive full value, with very loud attacks , with quick and large diminuendos.



Notes receive full value with no separation, receiving diaphragmatic stress rather than articulated accents.



Notes are a flow of sound, with the beginning of each note just barely articulated.



Notes receive some separation and diaphragmatic stress, rather than articulated accents.



Notes are a flow of sound, with no breaks between them.

Donald White. Chairman, Music Department, Central Washington University(Performer Survey).



Notes receive full value(with a minimum of space between notes), without loud attacks, with each note stressed.



Notes shortened in value(each separated from the next), with loud attacks.



Notes receive slight or some separation, with each note stressed or leaned upon.



Notes receive full value(each note barely separated from the next), with loud attacks and quick decrescendos.



Notes receive full value, with very loud attacks and quick decrescendos.



Notes are slightly separated, receiving forceful attacks with slight decays.



Notes are shortened in value, with very loud attacks and quick diminuendos.



Notes receive some separation and diaphragmatic stress, rather than articulated accents.



Notes are a flow of sound, with the beginning of each note just barely articulated.



Notes are one flow of sound, with no breaks between them.

John White.
Survey)

Professor, University of Florida(Composer



Notes receive full value(with a minimum of space between notes), without loud attacks.



Notes receive full value(with each note barely separated from the next), with loud or very loud attacks and quick decrescendos.



Notes are slightly separated, receiving forceful attacks with slight decays.



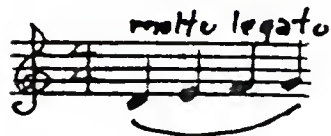
Notes are shortened in value, receiving very loud attacks, with only a slight diminuendo.



Notes receive full value with no separation, each note leaned on or stressed, either receiving diaphragmatic stress or barely articulated.



Notes receive slight separation, with each note leaned upon receiving diaphragmatic stress.



Notes are one flow of sound, with no breaks between them.

Richard Willis. Professor of composition, Baylor University (McBeth Book).



A forceful attack on each note.



Notes should be held full value and stressed slightly without initial accent.



Notes should be given a slight emphasis and perhaps a rubato lengthening.



A detachment between notes.



Notes are full value, given an initial accent and stressed.



Notes receive a very forceful attack (only used in higher dynamic levels).

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Cambridge Chamber Orchestra, E. Borok, conductor. Digitech Digitals DIGI 101.

Chamber Orchestra, J. Horenstein, conductor. Vox Box No. 35.

Concentus Musicus, N. Harnoncourt, conductor. Telefunken 6.35043 FA.

Jean-François Paillard Chamber Orchestra, J. Paillard, conductor. Musical Heritage Society MHS Stereo 4019/20.

Los Angeles Chamber Orchestra, G. Schwartz, conductor.
Angel Records Digital DSB 3901.

Mainz Chamber Orchestra, G. Kehr, conductor. Vox Stereo
STPL 516.440.

Marlboro Festival Orchestra, P. Casals, conductor. Columbia
Masterworks M2L 331.

New York Sinfonietta, M. Goberman, conductor. Odyssey
32 260014.

Württemberg Chamber Orchestra, J. Faerber, conductor. Sine
Qua Non MS5006.

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The Chicago Symphony, G. Solti, conductor. London CS 6930.

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Special Products C7-10647.

Columbia Symphony, B. Walter, conductor. Odyssey Y 30314.

The Concertgebouw Orchestra of Amsterdam, E. Kleiber,
conductor. Richmond B19105.

London Symphony Orchestra, N. Del Mar, conductor. Book of
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3086.

NBC Symphony Orchestra, A. Toscanini, conductor. RCA
Victor LM 1757.

New York Philharmonic, L. Bernstein, conductor. CBS
Great Performances MY36719.

Orchestre des Concerts Lamoureux, I. Markevitch, conductor.
Epic LC 3659.

Vienna Symphony, O. Klemperer, conductor. Allegro AR
88039.

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Boston Symphony Orchestra, E. Leinsdorf, conductor. RCA
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London Symphony, A. Dorati, conductor. Mercury MG 50278.

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Paris National Opera, P. Boulez, conductor. CBS 32 21 0001.

The Philadelphia Orchestra, E. Ormandy, conductor.
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Philharmonic-Symphony Orchestra of New York, D. Mitropoulos,
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Boston Symphony, C. Munch, conductor. RCA LM 1900 RE.

The Chicago Symphony, G. Solti, conductor. London C56790.

The London Symphony Orchestra, P. Boulez, conductor. CBS
32 B1 0010.

London Symphony Orchestra, C. Davis, conductor. Philips
PHS 900-101.

National Orchestra of France, J. Conlon, conductor. Erato
75106.

New York Philharmonic, D. Mitropoulos, conductor. Odyssey
Stereo 32 16 0204.

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Cluytens, conductor. Angel Records 35448.

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Angel 37414.

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Angel 37138.

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London CSH 2100.

The Philadelphia Orchestra, E. Ormandy, conductor.
Columbia ML 5648.

San Francisco Symphony Orchestra, P. Monteux, conductor.
RCA Victor LM 1131.

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Boston Symphony Orchestra, P. Monteux, conductor. RCA
VICS 1027.

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The New Philharmonia Orchestra, P. Boulez, conductor. Columbia M 30483.

New York Philharmonic, L. Bernstein, conductor. Columbia MS 7523.

Orchestra of Radio Luxembourg, L. Froment, conductor. Sine Qua Non MS 5016.

Orchestre de la Société des Concerts du Conservatoire, C. Silvestri, conductor. Angel 35688.

The Philadelphia Orchestra, E. Ormandy, conductor. Columbia MG 30950.

Philharmonia Orchestra, C. Giulini, conductor. Angel 35977.

Vienna New Symphony, M. Goberman, conductor. Odyssey Stereo 3216 0226.

Haydn, F. Trumpet Concerto.

Boston Pops Orchestra, A. Fiedler, conductor. Time Life Records STLS 6003 J.

The English Chamber Orchestra, M. Berinbaum, conductor. Vanguard VCS 10098.

Frankfurt Chamber Orchestra, C. Bamberger, conductor. Columbia Harmony HL 7173.

The Jean François Paillard Chamber Orchestra, J. Paillard, conductor. Musical Heritage Society MHS 533.

Orchestra of the Vienna State Opera, A. Heiller, conductor. Haydn Society HSLP 1038.

The Pro Arte Chamber Orchestra of Munich, K. Redel, conductor. Time Life Records TL 3 141.

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Mahler, G. Symphony No. 1 in D

Boston Symphony Orchestra, E. Leinsdorf, conductor. RCA
LSC 2642.

Concertgebouw Orchestra of Amsterdam, B. Haitink, conductor.
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6401.

Minneapolis Symphony Orchestra, D. Mitropoulos, conductor.
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Columbia Masterworks ML 4958.

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Qua Non MS 5015.

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Remington, Vol. 1, No. 1.

Chicago Symphony Orchestra, D. Barenboim, conductor.
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Capital Records P 8357.

London Symphony Orchestra, J. Martinon, conductor. RCA
LSC 2298.

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The New York Philharmonic, L. Bernstein, conductor.
Columbia 5401.

The Philadelphia Orchestra, E. Ormandy, conductor.
Columbia CL 707.

Philharmonia Orchestra, A. Galliera, conductor. Angel
Record 35346.

The Royal Philharmonic, G. Prêtre, conductor. Angel 35951.

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Band of the Grenadier Guards, R. Bashford, conductor.
London SP 44103.

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MS 7293.

The Columbia Symphony Orchestra, I. Stravinsky, conductor.
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New Philharmonic Orchestra, R. De Burgos, conductor.
Angel 36427.

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ML 5277.

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Wagner, R. Overture to Die Meistersinger.

Bamberg Symphony Orchestra, H. Hollreiser, conductor. Sine
Qua Non Masterpiece Series MS-5014.

The Bavarian State Opera Orchestra, J. Keilberth, conductor.
RCA Victor LSC 6708.

Bayreuther Festspiele, S. Varviso, conductor. Philips
6747 147.

Bayreuth Festival Orchestra, H. Karajan, conductor.
Columbia SL-117.

Chicago Symphony Orchestra, F. Reiner, conductor. RCA
Victor LM 2441.

Cleveland Orchestra, G. Szell, conductor. Columbia ML 6371.

Columbia Symphony Orchestra, P. Boulez, conductor.
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The London Symphony Orchestra, L. Stokowski, conductor.
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The NBC Symphony Orchestra, A. Toscanini, conductor. RCA
LM 6020.

The Philadelphia Orchestra, E. Ormandy, conductor. RCA Red
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Scores

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BIOGRAPHICAL SKETCH

Paul J. Greenstone, son of Arlene and Clifford Greenstone, was born on March 31, 1950, in New York City. The family moved to Valley Stream, New York, where Paul began his musical career by playing trumpet in the Howell Road Elementary School Band. His career continued with his playing in musical organizations of Valley Stream Memorial Junior High School and Valley Stream Central High School, where his major musical instrument became the tuba.

Greenstone received a B.M. degree from the State University College of New York at Fredonia. While at Fredonia, he studied tuba with C. Rudolph Emilson and, more importantly, met his future wife, Barbara Dassance. In 1972, Greenstone began his professional life by teaching instrumental music in the Winsted, Connecticut, Public Schools. While in Connecticut, he received an M.S. degree in Music Education from the University of Bridgeport, where he studied with Fred "Moe" Snyder. He later went on to study tuba with Don Butterfield and Chester Roberts.

In 1976, Greenstone and his wife moved to Maine, where he served as music director in public schools in Bar Harbor, Deer Isle-Stonington, and North Haven, as well as serving as an Adjunct Instructor of Music at the University of Maine at Orono. Among his performing credits are principal tubist with the Bangor Symphony Orchestra under Werner Torkanowsky,

original tubist with Geddy's Dixieland Band in Bar Harbor, and tubist with the Blue Hill Brass Quintet.

In August, 1982, Greenstone attended the University of Florida as a Graduate Council Fellow and later served as Graduate Assistant to the Director of the Memorial Auditorium. While at the University of Florida, Greenstone studied trombone and tuba with Richard Bowles. In 1986, he received the degree of Doctor of Philosophy in curriculum and instruction with a concentration in college music teaching and performing practices. He hopes to pursue a career of college teaching, conducting, composing, and performing.

I certify that I have read this study and that in my opinion it conforms to the acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.



Albert B. Smith, III, Chairman
Professor of Educational Leadership

I certify that I have read this study and that in my opinion it conforms to the acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.



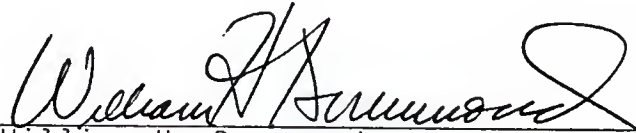
David E. Kushner, Cochairman
Professor of Music

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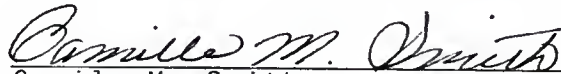
John S. Kitts
Professor of Music

I certify that I have read this study and that in my opinion it conforms to the acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.



William H. Drummond
Professor of Educational Leadership

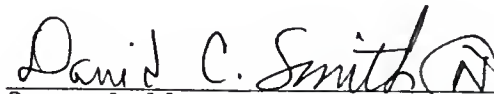
I certify that I have read this study and that in my opinion it conforms to the acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.



Camille M. Smith
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This dissertation was submitted to the Graduate Faculty of the College of Education and to the Graduate School and was accepted as partial fulfillment of the requirements for the degree of Doctor of Philosophy.

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